HAYNES

OFFICIAL GUIDE

YELLOWSTONE NATIONAL PARK

ILLUSTRATED

REVISED TO DATE

TWENTY-FIFTH EDITION

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HAYNES

OFFICIAL GUIDE

YELLOWSTONE NATIONAL PARK

Descriptive - Geological - Historical

Twenty-Fifth Edition
Revised Annually
By JACK E. HAYNES B. A.

Published and Illustrated by
F. JAY HAYNES
Official Photographer of Yellowstone Park

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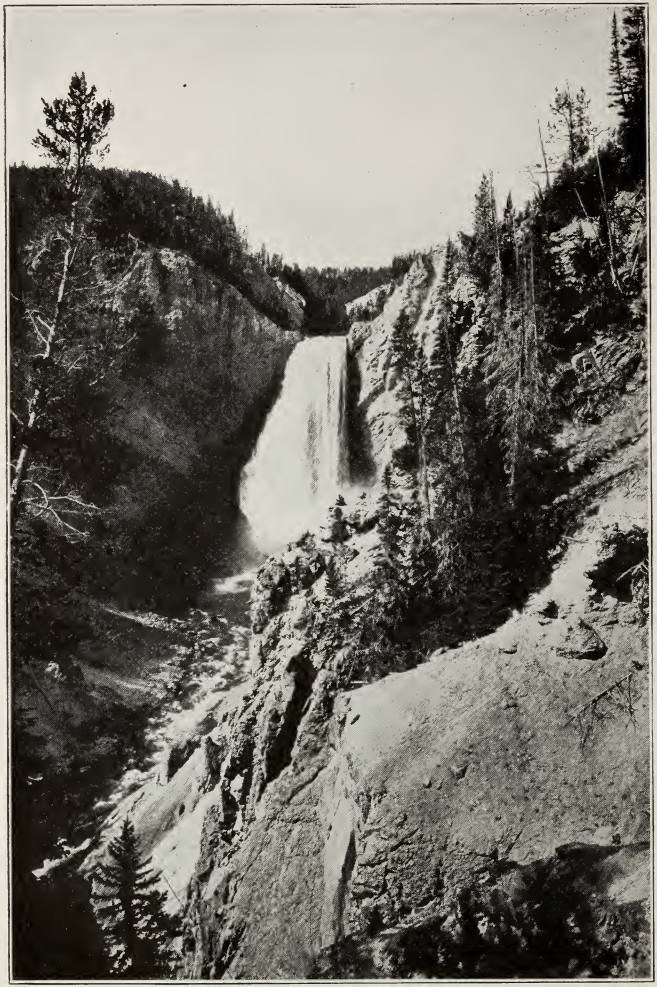
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GREAT FALLS OF THE YELLOWSTONE—360 FEET.

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YELLOWSTONE NATIONAL PARK

IN the northwest corner of Wyoming, in the heart of the Rocky Mountains, is located Yellowstone National Park. Its boundaries overlap a few miles into Montana on the north and Idaho and Montana on the west. The Park is 53.6 miles east and west and 61.8 miles north and south, giving an area of 3,312.5 square miles. No valley within its limits has an elevation of less than 6,000 feet, while many of the mountain peaks within and adjacent to the Park rise from 10,000 to 14,000 feet above sea level.

Yellowstone Lake, 15x20 miles in size, is the largest body of water in North America at this altitude (7,741 feet). Three of the largest rivers in the United States —the Missouri, Yellowstone and Columbia—have their source in the Yellowstone Park. The geysers of this region outclass anything of the kind in the known world. There are over fifty that throw a column of hot water 30 to 250 feet in the air at intervals of one minute to fourteen days. The Grand Canyon of the Yellowstone, ten miles long, with an average depth of 1,200 feet, is acknowledged by travelers to be the most brilliantly colored landscape in existence. The Mammoth Hot Springs are the only colored terrace-building hot springs known that have such beauty and magnitude. Cliffs of volcanic glass, unsurpassed waterfalls, mountains of petrifactions, charming valleys, hills of brimstone, perpetual snow-clad peaks, interspersed with thousands of natural curiosities, fittingly characterize

this as the wonderland of the world. Modern hotels have been constructed throughout the Park, conveniently located near these objects of interest. Substantial roads and bridges have been built leading to all the chief attractions—steamers have been placed on the lakes, mountain streams have been stocked with rare species of the finny tribe, military posts have been established, railroads have been built to the Park boundaries both from the north and west—all for the protection, pleasure, comfort and enjoyment of the people.

The Park is under the supervision of the Secretary of the Interior; and the Commanding Officer of Fort Yellowstone is Superintendent. The cavalry preserve order, patrol the roads, and guard the objects of interest from vandalism. Scouts protect the game from poachers; they roam over the entire tract summer and winter in the performance of their duties.

How to Reach the Park.—Two railroads have built branch lines to its borders: the Northern Pacific to the northern boundary at Gardiner, Mont.; and the Oregon Short Line to Yellowstone, Mont., at the western boundary. Both operate daily trains during the tourist season—June, July, August and September.

It may also be reached by wagon road from Cody, Wyo., to the east; and from Jackson's Hole south of the Park.

How to Make the Park Trip.—Automobiles, trolley-cars and railroads are not allowed within the Park borders. Transportation in the Park is by four and

six-horse Concord coaches, two and four-horse mountain wagons, two-horse surreys and saddle and pack outfits.

Congressional appropriations defray the cost of the splendid roads which are built, repaired and sprinkled by the U. S. Engineer Road Department.

The seven hotels in the Park which are located at the various points of interest are under the management of the Yellowstone Park Hotel Company whose lease from the government permits their construction and maintenance. They compare most favorably with hotels at other resorts in architecture, furnishings and table service; and are steam-heated, electric-lighted, and have telegraphic connection with the outside world during the tourist season.

Two Concord coach lines carry passengers through the Park in connection with the hotels; the Yellowstone Park Transportation Company operates from the Northern Entrance, and the Monida and Yellowstone Stage Company from the Western Entrance.

The Wylie Permanent Camping Company has established camps at various points along the regular route and operates from both entrances. The Bryant Camping Company (American Tourist Association) conducts camping parties from the Western Entrance, and the Shaw and Powell Camping Company from the Northern Entrance. Several other licensed camping outfits operate from both these entrances as well as through the Eastern Entrance from Cody, Wyoming.

All rates and charges in the Park are regulated and require the approval of the Department of the Interior.

THE PARK TOUR FROM THE NORTHERN ENTRANCE.*

ALL tourists in making the Park trip cover the same route irrespective of the gate entered and travel over the roads in the same direction.

Northern Entrance.—The Park Branch of the Northern Pacific Railroad has at its terminus a unique log depot at Gardiner, Montana. Near it stands the Northern Entrance Arch, built in 1903 and dedicated by President Roosevelt, which bears the following inscrip-



ARCH AT THE NORTHERN ENTRANCE.

*For the Park Tour from the Western Entrance. See Page 34.

tions: "Yellowstone National Park," "Created by Act of Congress March 1, 1872," "For the benefit and enjoyment of the people."

The road leads through Gardiner Canyon to Mammoth Springs, a distance of five miles. The Eagle Nest Rock by the side of cliffs rising over a thousand feet above the roadway, is one of the most interesting sights on this drive.

Fort Yellowstone, located at Mammoth Springs, has recently been enlarged by the addition of a number of new stone quarters and stables, enhancing both its appearance and size. Soldier stations are located at various points in the reservation but the headquarters of the cavalry in the Park is at Fort Yellowstone.

The Mammoth Hotel, the U. S. Commissioner's Building, the U. S. Engineer's Building and the Weather Bureau Station, are on the Mammoth Hot Springs Plateau. While the Hot Springs and terraces are seen occupying several acres on the slope of Terrace Mountain.

Mammoth Hot Springs.—It requires fully two hours to visit all the prominent springs and terraces, but from the road to Golden Gate, which passes along the base of Jupiter Terrace, one gets while riding past, an excellent idea of the form and coloring of the largest terrace. But to thoroughly inspect the beauties of these wonderful springs one must do considerable walking. The "Formation Party" starts from Mammoth Hotel in charge of a competent guide for the two-hour stroll among these wonders early in the afternoon. It is best to not burden oneself with heavy

wraps, as it is much warmer on the terraces than elsewhere; the ladies will find their parasols useful in lessening the intensity of the sun's heat.

The odor of sulphur is plainly detected on the windward side of the steaming pools and vents. The terraces and inclines over which the hot water flows are brightly colored, but where the deposit is dry the color has disappeared leaving the rock a pure white.

Hymen Terrace, one of the most brilliantly colored spots in the Park, is located near the hotel not far to the right of Liberty Cap. This new addition to the number of distinct terraces at Mammoth, while not so large as Jupiter, is easily the gem of the collection because of its exquisite coloring. The veil of steam softens and blends the vivid colorings, while innumer-



FORT YELLOWSTONE.

able water-glazed knobs reflect the sunlight like a thousand mirrors. Hymen Terrace is growing fast; in fact, it is gravely feared that the openings may become choked from the abundance of depositing lime. If this should happen, it would be a matter of but a few days until the coloring would have disappeared, leaving the travertine rock bare and exposed to the destructive forces of the elements.

Liberty Cap, an extinct hot spring cone, standing at the foot of Terrace Mountain, near the road, is fifty-two feet high and twenty feet in diameter at its base. It is formed of over-lapping layers of deposit, evidently having been built up by the overflow of water through the orifice in the top.

Devil's Thumb, a cone of similar structure, but smaller, is located some 200 feet west of Liberty Cap, partially imbedded in the hillside. The path leading to the Formation past the Devil's Thumb is generally taken when returning from the Formation, the one for the ascent branching off the main road a short distance south of Liberty Cap.

Minerva Terrace is a mass of deposit forty feet in height, covering an area of nearly three-fourths of an acre, with a hot spring on the summit some twenty feet in diameter, the temperature of which, at the edge, is 154 degrees Fahrenheit. The constant changing of the overflow and the intermittent character of the spring, make it impossible to predict a season in advance, which will be the active side of the terrace or whether it will be active at all.



HOT SPRING TERRACES.

Cleopatra Terrace, above Hymen but in sight of it, is a good example of the growing deposit. The predominating color here is dark orange.

Jupiter Terrace, the largest of the group, extends some 2,000 feet along the edge of the high mound of brilliantly colored deposit immediately south of Minerva Terrace. A climb of about 100 feet up quite a steep trail, is necessary to reach the summit. The two large springs of boiling water fully 100 feet in diameter, supply the main terrace, seen from the driveway, as well as the beautiful **Pulpit Terrace** beneath, on the eastern slope. Articles of iron, glass or any hard substance placed where the water can run over them, are soon coated with a crystal-white deposit of calcium carbonate.

Jupiter Terrace presents the most delicate coloring from the lightest cream to deep shades of yellow; orange predominating.

Cupid's Cave, situated a few rods west of the great pool on Jupiter Terrace, formerly had a large enough opening so one could enter it; but a mass of stalactite formation exquisitely colored, has now almost completely filled it.

Narrow Gauge Terrace.—A fissure ridge 300 feet long. When active is filled with miniature geysers and springs which deposit the most brilliant coloring.

Orange Geyser, on the terrace above Narrow Gauge, is greatly admired by all visitors. It consists of an oblong mound of deposit some twenty feet high and about thirty feet in diameter. The active little geyser on its summit and the brilliant coloring are its chief attractions.

Bath Lake is a few hundred feet south of Orange Geyser, separated by a timber-covered ridge of ancient deposit that nearly surrounds the lake. There is no visible outlet to Bath Lake; however, the uniform temperature of the water at all seasons of the year is one of the mysteries of this region.

Devil's Kitchen is the crater of an extinct hot spring. It can be entered with safety. Through a small opening some six or eight feet in diameter you descend a ladder into the kitchen. The peculiar damp and heated atmosphere of the interior produces a queer sensation and the desire to seek fresh air at once comes over the visitor. When the Devil's Kitchen was first explored



MAMMOTH HOT SPRINGS PLATEAU FROM TERRACES.

(in 1881) numerous bones of wild animals were found in the cave and it was alive with the flying bat.

Stygian Cave.—The poisonous gases from vents in the floor of the Stygian Cave have claimed the lives of many birds and small animals. It is situated a few rods from the Devil's Kitchen and is shaped like a large open fire place without a chimney; in this chamber the gases collect which suffocate the birds and animals seeking shelter there.

Angel Terrace.—One of the most beautifully colored terraces at Mammoth, may be seen through the trees from the Golden Gate Road. It is about three hundred yards south from Orange Geyser.

GEOLOGICAL.—The Yellowstone Park is young geologically but so old that the slow erosive power

of running water has carved furrows a thousand feet, or more deep, into its solid rock.

The mountains are igneous; and all through the Park there are evidences of violent volcanic eruptions as shown by extensive lava beds. Amygdaloid cliffs and great gnarled masses are common; there are obsidian cliffs, great geometrical blocks, petrifactions and geods, besides the print of leaves in rock where forests have fallen prey to the flowing molten lava.

Some sedimentary deposits are also found here near the northern boundary, in the form of limestone beds, clays and shales. There were glacial invasions from the north too, which have left hills of sand and gravel, and isolated boulders at various points.

But the most wonderful deposit in the region is this **Formation at Mammoth Hot Springs.**

It is composed of pure calcium carbonate, dissolved from the limestone beds below and brought to the surface by the hot springs. It is many acres in extent —of unknown depth—and is the result of periods of successive deposition and decay extending over a great length of time. The deposit is building where the water flows and crumbling to a chalky powder where dry.

The water is heated by great masses of rock which have not yet cooled below the zone of percolating water. Such conditions are also seen today in New Zealand and Iceland.

Four factors are held responsible for the practically complete precipitation of the lime carried by the water

to the surface; namely, (1) the "eating" process of the algous growth which thrives in the hot water, (2) the giving off of carbonic acid to the air, (3) the cooling of the water and (4) evaporation.

The chief attraction of this great deposit is its beautiful coloring; harmonizing shades of yellow and brown with occasional streaks of dark green and red characterize the formation where the hottest water flows. The predominating rust color is found in the tepid water farther from the mouths of the hot springs. It is noticeable that the abandoned portions of the deposit are a glaring chalk-white, also that the colorings are found only on the active terraces; furthermore, the color disappears in winter when the water



SILVER GATE AND BUNSEN PEAK.

is cooled to the mouths of the boiling springs. Mineral coloring is more stable than that; such coloring remains on rock wet or dry, and in a great range of temperatures. But the algæ color these terraces more beautifully than could natural mineral coloring or the hand of man; the algous growth—a low form of plant life—cleaves closely to the rock in a velvet-like covering which requires hot or tepid water in which to live.

Nor are the intense pool colors due to minerals; the United States Geological Survey authoritatively states that the reflection and refraction of the light rays, influenced by the nature and color of the pool linings and surroundings, determine the colors; and the depths of the pools, their intensity.

Silver Gate and the Hoodoos.—The driveway between Mammoth and Golden Gate ascends the mountain with such easy grades and graceful curves that one does not realize that a thousand feet elevation is gained in less than three miles. This road passes through the **"Hoodoos,"** a wild, strange region heretofore inaccessible. Many theories are advanced as to the origin of the "Hoodoos." The most plausible is that the immense quantity of deposit or formation seen lower down the valley, even as far as Gardiner River, two miles distant, was carried there in solution by the hot waters of Mammoth Springs, thus leaving honeycombed caves beneath, and the present "Hoodoo" region is simply where the mountain has caved in, filling the cavern below. They cover an area of about one square mile, and are located nearer Golden Gate



GOLDEN GATE CANYON AND VIADUCT.

Canyon than the Mammoth Springs. In the midst of the "Hoodoos" the road makes an abrupt turn, passing between great blocks of limestone that rise abruptly fully seventy-five feet, to which is applied the very appropriate name, **"Silver Gate."**

Golden Gate.—Four miles from Mammoth Springs is one of the most picturesque points in the Park. It is a rugged pass between the base of the lofty elevations of Bunsen Peak and the southern extremity of Terrace Mountain, through which flow the west branch of Gardiner River. The sides of these rocky walls, which rise 200 to 300 feet above the roadway, are covered with a yellow moss, suggesting the appropriate name the pass now bears. The pillar at the east entrance, some twelve feet high, was originally a part

of the canyon wall. The construction of this roadway and viaduct, scarce a mile in length, was the most expensive and difficult piece of road building yet encountered by the government engineers.

Rustic Falls, occupying a conspicuous position at the west end of Golden Gate, adds a charm to this beautiful spot, and when seen in the early part of the season is especially fine. The stream is fed by mountain snows and springs along the base of the hills a mile or so beyond. The fall is some sixty feet, over a series of shallow basins worn into the dark, moss-covered ledge, disappearing underneath the surplus of rock deposited in the canyon from the construction of the roadway. The view obtained of Golden Gate upon the return trip is equally interesting.

Swan Lake Basin.—A pleasant surprise awaits the visitor immediately beyond Golden Gate, in Swan Lake Basin, it being quite unlike the region just traversed, and one of the many typical mountain prairies hemmed in by snow-clad peaks found throughout the Park. Evidences of old Indian camps are seen in many places, and during the fall and winter it is inhabited by hundreds of elk and deer. The magnificent range to the west is the Gallatin Mountains, among which are Bell Peak, Quadrant Mountain and Mt. Holmes; the last named having an elevation of 10,578 feet. Vast fields of perpetual snow are in sight throughout the summer. To the north about eight miles is **Electric Peak,** the highest mountain in the Park, whose summit rises 11,155 feet above sea level, deriving its name from the fact that a great deposit of minerals renders the



OBSIDIAN CLIFF.

workings of the surveyor's transit impossible when on the mountain. The peculiar electrical display from its rugged peaks during a thunder storm is a sight witnessed by only a favored few. The drive continues south through Swan Lake Basin—at the south end of which is located one of the Wylie Camps—and crosses Gardiner and Willow creeks which form the Middle Gardiner River.

Apollinaris Spring is on the east side of the road near the ten-mile post—a delicious spring of natural Apollinaris water, as refreshing as the genuine article of commerce.

Obsidian Cliff.—This bold escarpment of volcanic glass is twelve miles south of Mammoth Hot Springs.

The roadway passes along its base for 1,000 feet between it and Beaver Lake. The vertical columns of pentagonal-shaped blocks of obsidian, rising some 250 feet above the road, present a glistening, mirror-like effect when illumined by the sun's rays. The greater part of this mineral glass is jet black and quite opaque, with traces of similar formation variegated with streaks of red and yellow. The construction of the roadway along its base was accomplished in a novel manner and with considerable difficulty; the use of blasting powder being out of the question, great fires were built around the huge blocks of glass, which, when expanded, were suddenly cooled by dashing water upon them, resulting in shattering the blocks into small fragments. This process made possible the construction of this really wonderful roadway, probably the only piece of glass road in the world. There being no other exposed ridge of obsidian in the Rocky Mountains, and this material being more desirable than flint for the manufacture of arrow heads, it was once a famous resort for all tribes of Indians, who congregated here in great numbers. Obsidian Cliff was "neutral ground" to all the Rocky Mountain Indians, and undoubtedly as sacred to the various hostile tribes as the far-famed Pipestone country of Minnesota. Chips of obsidian and specimens of partly finished arrow heads are found throughout the Park, generally at places occupied by the Indians as summer camps.

Beaver Lake.—The roadway continues along the east side of Beaver Lake, which is about one mile long and a quarter of a mile wide. Several beaver dams are

constructed across the lake, forming a series of artificial obstructions, each having a fall of from two to four feet. A beaver house, still inhabited, is located near the west shore of the lake. Since the rigid enforcement of the Park regulations regarding the killing of game, Beaver Lake is becoming alive with numerous water fowl, the passing carriages not seeming to alarm them. The reflection of the pine-clad hills among the dense growth of pond lilies which line its shores, adds to the beauties of this lake. The drive from Obsidian Cliff to Norris, though not of especial interest, is over one of the natural "passes" between the headwaters of the branches of the Yellowstone and Missouri rivers, but the ascent of the divide is so gentle, it is impossible to know when it is passed. **Twin Lakes** and the **Frying**



CONSTANT GEYSER, NORRIS BASIN.

Pan are the other attractions passed on the way to Norris.

Tourists entering at the Western Entrance who are making the tour by the M-Y coaches reach Norris Basin from the Canyon about 10:30 A. M. and are conducted over the formation by the Y. P. Hotel guide *before* lunch—those entering at the Northern Entrance and traveling by the Y. P. T. Co. coaches are conducted over the formation *after* lunch.

NORRIS GEYSER BASIN.

This region, called the "Gibbon Geyser Basin" in Dr. Hayden's report, was explored in 1875 by Colonel P. W. Norris, then superintendent of the Park. Since 1881 it has been called Norris Geyser Basin. It covers an area of six square miles, and is one of the most interesting portions of the Park from a geological standpoint, from the fact of its being one of the highest geyser basins in the Park, and many of its active geysers being of quite recent origin.

While the geysers of Norris Basin do not compare in point of erruptive violence with those of the Upper Basin (thirty miles south), they are of great interest to travelers never before witnessing this strange freak of nature; hence it is better to inspect them when first passing through, as they appear rather insignificant upon the return trip.

The chief attractions at Norris Basin are the Congress and Emerald pools, the Black Growler and Hurricane steam vents, and seven geysers, namely, the Constant, New Crater, Monarch, Fearless, Valentine, Mud and Minute Man.

Congress Pool.—The first sight that attracts the visitor is this immense boiling spring, in close proximity to the road, on the left as one enters the basin. It is the largest spring of its class found in the Geyser Basins and is rapidly approaching a geyser. Its pale blue water is in a state of violent agitation, with occasional demonstrations that force the water fifteen or twenty feet above the rim of the crater; the diameter of the same is fully forty feet. For several years there existed near the Congress the "Steam Vent," one of the features of this basin. It consisted merely of an opening in the rocks from which a great quantity of steam was constantly escaping; the roaring of the same could be heard for miles. During the winter of 1893 the "Steam Vent" ceased and the Congress appeared. The first eruptions were of great force and completely blockaded the road with masses of earth and formation.

Emerald Pool.—The path leading to Emerald Pool and the New Crater branches off from the carriage road a short distance south of the Black Growler. Emerald Pool is somewhat concealed in the timber and is a handsome emerald-tinted spring, 40x50 feet in size.

The sulphur-lined basin with coral walls, most beautifully shaped, can be seen to an appalling depth. It is one of the many quiet springs, slightly overflowing. The water is quite hot, having a temperature of 186 degrees Fahrenheit at its edge.

Black Growler, with a chimney-shaped opening, is located quite near the road, at the head of a gulch leading from the plateau. Very little water is thrown

out, while a large quantity of steam is constantly escaping, producing a peculiar sound. The deposit surrounding the edge of the crater is, at times, of inky blackness, evidently the origin of its name. The water is not clear and has a strong odor of sulphur, which is probably the cause of its turbidity. The geyser, a few feet to the north, known as the **Hurricane,** is similar to the Black Growler in the character if its eruption, which is continuous and destructive to surrounding vegetation and foliage.

GEYSER TABLE.
NORRIS GEYSER BASIN.

Corrected by observations made during season of 1909.

Geysers at Norris Basin	Height	Duration	Intervals of Eruption
Constant	20 ft.	10 sec.	30 sec.
Fearless	25 ft.	15 min.	3 hrs.
Minute Man	15 ft.	1 to 3 min.	1 to 3 min.
Monarch	100 ft.	6 min.	6 hrs.
Mud	20 to 60 ft	1 to 2 min.	New; irregular.
New Crater	20 ft.	1 min.	3 min.
Valentine	100 ft.	40 min.	7 ½ hrs.

Constant Geyser.—The pool from which this geyser plays is twenty-four feet in diameter and is filled with boiling water of crystal clearness. It is situated in the center of the basin.

New Crater Geyser.—This geyser is about 500 feet southeast of Emerald Pool, surrounded by huge blocks of dark yellow rock. It came into prominence during the fall of 1891, when quite a commotion, not unlike an earthquake, was observed. When it burst forth a great volume of water was forced out, flooding the



NEW CRATER GEYSER, NORRIS BASIN.

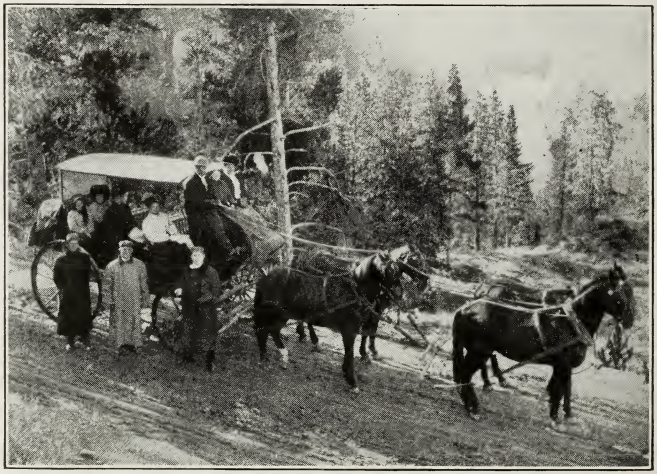
ravine leading to the valley below. Since then it has settled down to ordinary eruptions, about every three minutes. The rock-covered crater prevents the discharge attaining any great height.

Monarch Geyser, the king of geysers in Norris Basin, is situated at the base of the hill, nearly surrounded by a bluff of brilliantly colored rocks, upon the level of the plateau about 1,000 feet east of the roadway. The crater consists of two oblong openings, the larger of which is twenty feet long and three feet wide. Eruptions of the Monarch occur without warning and consist of a series of explosions, frequently more than a dozen, in which columns of water are

thrown 100 feet high. The intervals of eruptions are ordinarily about six hours.

Fearless Geyser, situated at the foot of the hill in front of the Norris Lunch Station, throws jets of water in every direction during eruptions. Norris is the newest geyser basin in the Park and probably the one most rapidly changing. One cannot be sure a season in advance whether any one of its geysers will be doubly active the coming summer or die out.

Minute Man Geyser.—This little geyser plays out of a fissure in the rock at the south end of Norris Basin. The overflow following its eruptions is not large, but its display is interesting; most of the water flowing back into its crater.



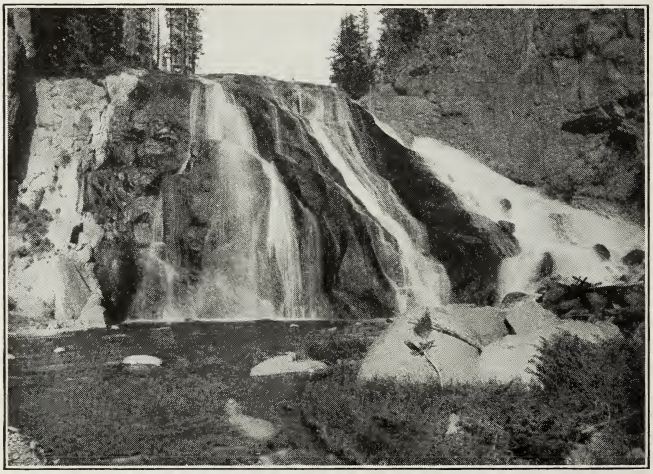
A STAGE COACH PARTY.

Three miles from Norris Basin the road enters Elk Park, a beautiful valley surrounded by heavily timbered hills and mountains, the Gibbon River quietly winding through it.

A recently constructed driveway along Gibbon River, from Elk Park into Gibbon Meadows, not only avoids a dangerous hill but opens up a very beautiful bit of Gibbon River scenery, conspicuous among the several attractions being the two **Chocolate Springs,** unlike anything in the Park. One is situated near at hand, between the road and the river, the other being on the opposite bank.

Gibbon Canyon.—This rugged mountain pass affords the only fairly easy means of exit from Norris Geyser Basin to the valley of the Firehole. The roadway enters the canyon on the east side of the Gibbon River, and follows the latter's course as nearly as practicable for three or four miles, shadowed by precipitous cliffs, at places some 2,000 feet in height. At the northern entrance to the canyon, on the opposite side of the river from the road, a trail leads to the summit of Mt. Schurz, upon which is located **Monument Geyser Basin,** at an altitude of 1,000 feet above Gibbon River. Interesting as this "basin" unquestionably is, its difficult access, together with the time necessarily consumed in climbing and descending the somewhat steep trail, is, unless to one inclined to scientific observation, scarcely compensated by even the closest scrutiny of the dozen or so crumbling geyser cones—some of them steaming and rumbling, others apparently extinct—which constitute the sum total of attractiveness and

give to the locality a distinctive name. Proceeding along the pass, the numerous little puffs of steam arising from either bank of the river, near the water's surface, need no watchful guide to apprise the passer-by of countless hot springs with which the gorge abounds. Many of these springs are curious and interesting, and all can be sufficiently observed as one passes leisurely along, without stopping to examine each in detail. One of them, however, **Beryl Spring,** is rather more than usually attractive, and deserves, as it seldom fails to receive, somewhat of particular notice—the largest boiling spring in the canyon, being some fifteen feet in diameter, is located close by the roadside, about a mile from the entrance to the canyon and can be readily



GIBBON FALLS—80 FEET.

viewed from a passing carriage; the violent boiling of its surface, coupled with the noisy hiss of escaping steam, while lending something of a nervous apprehension to the feelings of the traveler, strangely enough possesses no terrors for the stage-horse, although the constant overflow of scalding water from the edges of its basin-like rim pours across the roadway itself. The road, throughout the canyon's entire length, could hardly have been better constructed to afford a more complete and thorough inspection of the wild beauty of rock and glen, and, as it nears the southern exit from the pass, permits a good view of one of the many charming cataracts of this region.

Gibbon Falls, whose waters tumbling in a foamy torrent down a series of steep cascades on one side of a bold rocky ledge, and on the other, streaming in a thin shining ribbon of silvery spray from a height of something over eighty feet, fittingly concludes the attractions of Gibbon Canyon.

Leaving the Falls the road descends to the Gibbon Canyon junction, the right hand road follows down the river to the Western Entrance and the left hand road to the Lower Basin. A Wylie Lunch station is located at this point.

For a distance of three or four miles from the junction the route is over a succession of pine-clad terraces to the valley of the Firehole River, this portion of the drive is greatly admired from the fact that the recent improved methods of government road building, in which all timber and rubbish have been removed instead of placed in unsightly piles along the roadside,

gives the same something of an ideal park-like appearance. The Gibbon and Firehole Rivers unite in forming the Madison River, one of the three principal sources of the Missouri.

The first glimpse of the Firehole is at the cascades near the junction of the road from the Western Entrance, about two miles from the confluence of the Gibbon and Firehole.

THE PARK TOUR FROM THE WESTERN ENTRANCE.

The Western Entrance.—On Nov. 12, 1907, the Oregon Short Line Railroad was completed to Yellowstone, Montana, on the western border of Yellowstone Park, twenty miles from the Lower Geyser Basin.



OREGON SHORT LINE DEPOT, YELLOWSTONE, MONT.

Passengers making the hotel trip through the Park are transported by the Monida and Yellowstone Stage Company operating in connection with the Oregon Short Line Railroad, in elegant four-horse Concord coaches to all points in the Park.

The unique stone depot which has been erected here has every convenience for the traveler; private dressing rooms for ladies and gentlemen, attendants, and check rooms where extra baggage may be stored while making the Park trip. Coats, hats and linen dusters are for rent, and the Dining Car Department of the Oregon Short Line operates an eating house where excellent meals are served.

Departing from the depot at Yellowstone, one immediately enters **Christmas Tree Park.** This beautiful plateau, extending for ten miles along the western boundary, is about three miles wide where the road crosses the same. It is covered with ornamental pine trees and open parks, suggesting its very appropriate name. The character of the soil, obsidian sand and volcanic ash, is an excellent material for wagon-road construction. The government engineers decided that to simply remove the timber was all that would be necessary for a natural and ideal roadway. Some two miles from the station, the beautiful Madison River comes into view, and the government road follows the stream to its head-waters in the geyser basin. A Wylie Camp is located a short distance from the depot; and Riverside military station is situated on the south bank of the Madison River near the west approach to the Madison Canyon—a detachment of United States cav-



CHRISTMAS TREE PARK AT WESTERN ENTRANCE.

alry is located here for the protection of this portion of the reserve. The scenery of Madison Canyon is acknowledged by all visitors to be equalled only by the Grand Canyon of the Yellowstone.

The United States Fish Commission stocked the Madison River with the Rainbow and Loch Leven trout, which has made this section of the Park famous. It is not uncommon that expert anglers land a six-pound Rainbow trout, a sport to be appreciated only by experience. There are over one hundred miles of trout streams in the Park with but few restrictions placed upon the sport. The Madison River route is the pioneer entrance into Yellowstone Park, and was used by such early explorers as Bridger and Burley,

discoverers of Great Salt Lake; Coulter of the Lewis and Clark Expedition, and Prof. Hayden of the United States Geological Survey.

National Park Mountain is at the junction of the Gibbon and Firehole rivers, the source of the Madison, which forms one of the main branches of the Missouri River. From this point to the Gulf of Mexico it is over four thousand miles by the course of the stream. The Gibbon River drains the Norris Geyser Basin and its surroundings, while the Firehole originates in the Lower and Upper Geyser Basins. On September 19, 1870, the Washburn-Langford party were camped at the junction of the Gibbon and Firehole. They had just completed an exhaustive exploration of Yellow-



LOCH LEVEN AND RAINBOW TROUT OF THE MADISON.

stone Lake and the geyser basins. It was at this point, when in camp, that a member of the party suggested that the region just explored should be a National Park, and it was through their efforts that Congress in 1872 passed the act of dedication. After leaving the junction of the Gibbon and Firehole, the road passes for a distance of three or four miles over a succession of pine-clad terraces to the Valley of the Firehole. Between the junction and the cascades the river makes a detour to the south through a rough and almost inaccessible region.

Cascades of the Firehole are not far beyond the junction of the two forks which make the Madison River, namely the Gibbon and the Firehole. The Firehole River owes a large part of its flow to the immense amount of water from the geyser basins, so in many places along its course the water is appreciably warm; in spite of this fact, however, the trout abound in its pools all the way from its source, Madison Lake, to where its waters rush over the cascades, and into the Madison River.

Below the cascades the river is confined in a narrow gorge until it reaches the Falls of the Firehole, located a short distance above its union with the Gibbon. After passing the cascades—where a few moments' halt is generally made—the driveway continues for some distance along the banks of the stream. The graceful curves and pine-clad hills extending to the water's edge make this one of the most charming spots of the reservation.



CHIEF JOSEPH OF THE NEZ PERCE INDIANS.

A mile and a half from the Lower Geyser Basin the summer cantonment of a troop of United States cavalry is stationed for the better protection of this part of the Park.

The roadway crosses **Nez Percé Creek**, made famous by the Nez Percé Indians, headed by Chief Joseph, on their memorable raid through the Park in 1877, while pursued by General Howard and his command, and continues on for a mile or so to the Fountain Hotel, one of the best hostelries of the Park—the end of the first day's journey.

Lower Geyser Basin.—This is a comparatively wide valley, extending southward from the junction of the east fork of Firehole River with the main stream, and embracing an area of thirty to forty square miles. Over this valley or basin are scattered hot springs in groups, of which Dr. Hayden, in his official survey of the Park Region, has catalogued 693, exclusive of 17

geysers. The general elevation is about 7,250 ft., while the surrounding slopes, which are, for the most part, heavily timbered, are 400 to 800 feet higher.

The Fountain Hotel.—This elegant hotel is pleasantly situated on the east side of the valley, commanding an extended view of the surroundings. Its appointments are first class throughout, electric light, steam heat, and the only hotel in the Park having natural hot water baths. It is the first hotel reached by visitors entering the Park from the west. The adjacent streams are stocked with "Loch Leven" and "Eastern Brook" trout, and with the many natural curiosities in this vicinity one can profitably spend several days at the "Fountain."

The chief attractions at the Lower Geyser Basin are the Fountain and Great Fountain Geysers, the Mammoth Paint Pots, Clepsydra Spring and Firehole Lake. At the Midway Geyser Basin four miles further on towards the Upper Basin, are the Excelsior Geyser, Prismatic Lake and Turquoise Spring.

GEYSER TABLE.
LOWER AND MIDWAY BASINS.

Corrected by observations made during season of 1909.

Geysers at Lower Basin	Height	Duration	Intervals of Eruption
Fountain	75 ft.	20 mm.	3 to 6 hrs.
Great Fountain	100 ft	30 min.	8 to 12 hrs.
At Midway Basin			
Excelsior	300 ft.	Variable.	1 to 4 hrs. Ceased to play in 1888.

Fountain Geyser occupies an eminence, south of the hotel about 2,000 feet.

The formation or deposit from the waters of this geyser covers an area of several acres, the crater of which is thirty feet in diameter, surrounded by a rim-like edge, to the margin of which the water rises, except upon the south side, where a mound of beaded geyserite has been built up to a height of three or four feet. On the north side of the geyser proper is a considerably larger pool which receives the overflow from the crater. The cushion-like masses of geyserite, which are plainly visible through the transparent blue water, in both the crater and the pool, are very much admired.

Indications of an eruption are as follows: When both the pool and crater are full of water to the rim it is probable that an eruption will soon take place, as immediately after action the water falls from twelve to eighteen inches below the crater rim, from which point it rises gradually until the climax is reached.

In July, 1899, the Fountain Geyser ceased operations and remained inactive until October, when it resumed its usual displays. In the meantime an immense geyser broke out in the large pool north of the Fountain. Its eruptions were of great force, quite irregular, but gave exhibitions equal to Old Faithful, only continuing, at times, fully an hour.

In July 1909, ten years later, it abandoned its crater for the one adjoining and threw out jagged masses of geyserite more than 200 feet. The water was muddy and full of rock fragments for many hours: and as



MAMMOTH PAINT POTS, LOWER BASIN.

late as September, large pieces of rock were thrown out during the more violent eruptions.

For two days preceding the breaking out of this geyser in its new place, much disturbance was noted in the vicinity; loud rumblings were heard and the thumping of the entombed steam and water, gaining in violence each hour, alarmed even those most used to the strange phenomena of the geyser region. During the remainder of the season of 1909 the Fountain Geyser played much higher than before, like a stream through a smaller nozzle, but its eruptions were less regular.

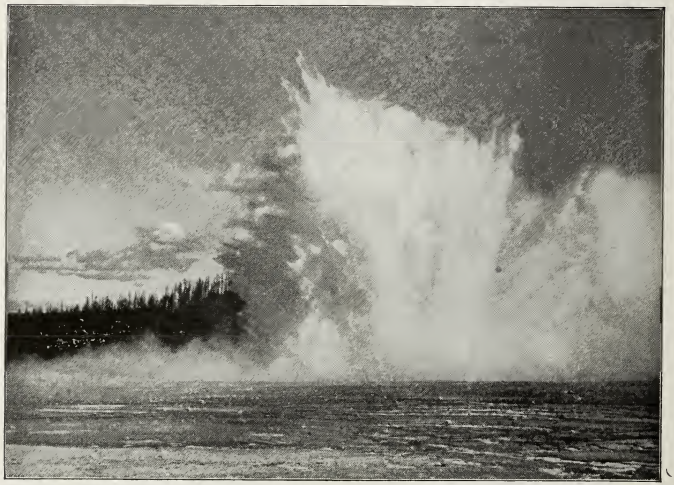
Clepsydra Spring, some fifty feet west from the Fountain, has recently developed into an active geyser of no small eruptive power, its frequent displays being

really quite violent for so small a "spouter" and very pleasing withal.

Mammoth Paint Pots.—Some few hundred feet east of the Fountain, near the road, from which they are separated by a fringe of trees, are situated these wonderful paint pots. This remarkable mud caldron has a basin which measures 40x60 feet with a mud rim on three sides, which is from four to five feet in height. In this basin is a mass of fine, whitish substance which is in a state of constant agitation. It resembles some vast boiling pot of paint or bed of mortar with numerous points of ebullition; and the constant boiling has reduced the contents to a thoroughly mixed mass of silicious clay. There is a continuous bubbling up of mud, producing sounds like a hoarsely whispered "plop-plop," which rises in hemispherical masses, cones, rings and jets.

Great Fountain Geyser is situated about two miles south of the hotel and about one mile east of the main road; the one to the geyser branches off soon after crossing Fountain Creek. The Great Fountain, as described by Mr. David E. Folsom, who witnessed a display October 1, 1869, faithfully portrays its present exhibitions. "The hole through which the water was discharged was ten feet in diameter, and was situated in the center of a large circular shallow basin into which the water fell. There was a stiff breeze blowing at the time, and by going to the windward side and carefully picking our way over convenient stones we were enabled to reach the edge of the hole. At that moment the escaping steam was causing the water to

boil up in a fountain five or six feet high. It stopped in an instant, and commenced settling down—Twenty, thirty, forty feet—until we concluded that the bottom had fallen out, but the next instant, without any warning, it came rushing up and shot into the air at least eighty feet, causing us to stampede. It continued to spout at intervals of a few moments for some time, but finally subsided." There are many interesting and curious sights in the vicinity of the Great Fountain that should be visited. The "White Dome," "Surprise," **Firehole Lake,** "Mushrooom," and **Buffalo Spring** are the most prominent. The latter was discovered in 1869 by an early exploring party. In describing their trip the writer says: "In one of these springs we saw



EXCELSIOR GEYSER, MIDWAY BASIN.

the whitened skeleton of a mountain buffalo that had probably fallen in accidentally. No king or saint was ever more magnificently entombed than this monarch of the hills in his sepulchre in the wilderness."

Midway Geyser Basin.—Strictly speaking, this section constitutes the upper portion of the Lower Basin, and is about three miles from Fountain group. Being about midway between the extremes of the Upper and Lower Geyser Basins, this locality is given a distinct designation.

Excelsior Geyser.—"Early explorers in this locality discovered, in 1871," says Dr. Peal, "on the west bank of Firehole River, an immense pit of rather irregular outline, 330 feet in length by 200 feet in width at the widest part. The water is of a deep blue tint, and is intensely agitated all the time, dense clouds of steam constantly ascending from it. It is only when the breeze wafts this aside that the surface of the water, which is fifteen or twenty feet below the level surrounding, can be seen. The walls on three sides are perpendicular, cliff-like, and in places overhang, having been worn away on the other." With every indication of a powerful geyser with long intervals of eruption it was, however, not known to be a geyser until some ten years later. Visited by thousands annually, this section became known as "Hell's Half Acre," a name it retained until 1881, when discovered by Colonel P. W. Norris to be a geyser of great force, and then named by him "Excelsior." Its eruptions in 1881 began in the fall, after the tourist season had closed; Colonel Norris witnessed upwards of thirty eruptions,

varying from 75 to 250 feet in height, at intervals of one to four hours. No further eruptions of this geyser are recorded until early in the spring in 1888, when reports became current that Excelsior was again in action. Eruptions of great force continued during the spring and summer in 1888, which resulted in enlarging the crater fully 100 feet. The intervals of eruption during 1888 were at first about every hour and fifteen minutes, increasing towards the latter part of the season to two hours. The only possible indication of an approaching display was the increase in the volume of overflow, there being a steady filling of the crater after periods of activity. Immediately preceding an eruption a violent upheaval occurred, raising the entire volume of water in the crater nearly fifty feet, then instantly one or two and sometimes three terrific explosions would occur, followed closely by the shooting upwards of columns of water, and oftentimes masses of the rocky formation, to a height of 200 to 250 feet. Tons of rock have in this way been hurled into Firehole River, some pieces fully 500 feet from the crater. At each upheaval sufficient water would escape to raise the river several inches. The inactivity, during 1888, of two of the largest geysers in the Upper Basin was attributed to the wonderful activity of Excelsior, which, at each eruption, ejected as much water as all the geysers combined.

Turquoise Spring, situated about 150 feet north of Excelsior, is a silent pool, about 100 feet in diameter, and remarkable for its beautiful blue transparent water. There is a constant overflow from the spring, through

a shallow channel some two feet wide, its sides and bottom being exquisitely colored; when Excelsior was in action the water in this spring sank fully ten feet and did not resume its normal condition for nearly a year. West of the Turquoise Spring, and in itself a marvel, is a small spring of cold water, which, though rather "brackish" to be palatable, is attractive as being the sole cold spring in this region of thermal waters.

Prismatic Lake is probably the very largest and certainly one of the most beautiful springs in the entire Park region. It is situated some 500 feet or so west of Excelsior Geyser, its dimensions being 250x400 feet. Over the central pit, or bowl, of this spring the water is of a deep blue color, changing to green towards the margin, while that in the shallower portions of the lake surrounding the central basin has a yellow tint gradually fading into orange. Outside its rim there is a brilliant red deposit, which shades into purples, browns, and grays, all seemingly painted upon a ground of grayish white, which forms the mound, built up of layers of silicious deposit, upon which the spring is situated. This coloring is in vivid bands, which are strikingly marked and distinct. The water flowing off in every direction, with constant wave-like pulsations over the artistically scalloped and slightly raised rim of the lake, has formed a succession of terraces, each a few inches in height, down the slopes of the mound, particularly upon its southern face. It is impossible to exaggerate the delicacy and richness of the coloring in and about this wonderful phenomenon of nature. The temperature of the water is about 146 degrees



PRISMATIC LAKE, MIDWAY BASIN.

Fahrenheit, and the constantly rising clouds of steam sometimes render difficult a good view of the lake surface; but viewed from the proper standpoint (generally with the sun to the back), these same volumes of steam are exceedingly attractive, reflecting the colors of the rainbow or prism, whence the name of the spring, though some attribute it to the variegated tints of its waters. The entire drive from Midway to the Upper Basin, some five miles, is among many natural wonders.

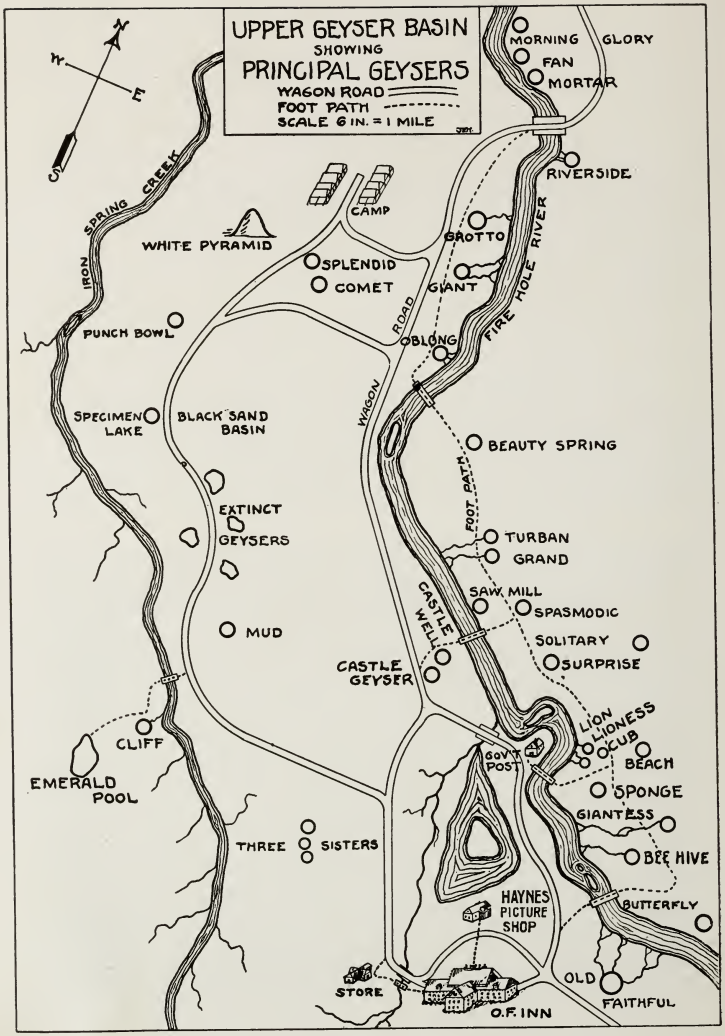
Biscuit Basin is on the west side of Firehole River and on the north side of Iron Spring Creek, being about one mile below Riverside Bridge. The foot bridge over Firehole River nearby allows one to easily visit this locality. The principal attraction in Biscuit Basin is **Sapphire Pool**, whose highly ornamented margin sug-

gested the basin's rather odd name. Hundreds of small symmetrical, biscuit-like knobs of olive-green formation surround the spring, which is of the variety known as pulsating or breathing springs (geysers in fact). The constant ebb and flow of its waters have produced this peculiar formation, from one to another of which one must pick one's way in order to get a good view of the pool itself. A few feet to the west is

Jewel Geyser, whose eruptions occur with the remarkable frequency of from three to five minutes, throwing jets of water to a height of about forty feet. Scarce 500 feet further west are the **Black Pearl** and **Silver Globe.** The former has a beautiful basin, studded thickly with black pearls, each about one-quarter of an inch in size. A curious feature of this



MORNING GLORY SPRING, UPPER BASIN.


UPPER GEYSER BASIN
SHOWING
PRINCIPAL GEYSERS
WAGON ROAD
FOOT PATH
SCALE 6 IN. = 1 MILE
N
W
E
S
MORNING
GLORY
FAN
MORTAR
RIVERSIDE
FIRE HOLE RIVER
GROTTO
GIANT
CAMP
SPRING CREEK
GIBBON
WHITE PYRAMID
SPLENDID
COMET
PUNCH BOWL
ROAD
OBLONG
WAGON
SPECIMEN LAKE
BLACK SAND BASIN
BEAUTY SPRING
FOOT PATH
EXTINCT GEYSERS
TURBAN
GRAND
SAW MILL
SPASMODIC
CASTLE WELL
MUD
SOLITARY
SURPRISE
CASTLE GEYSER
LION
LIONESS
CUB
CLIFF
GOVT POST
BEACH
EMERALD POOL
SPONGE
GIANTESS
THREE SISTERS
BEE HIVE
HAYNES PICTURE SHOP
BUTTERFLY
STORE
OLD FAITHFUL
O.F. INN

GEYSER TABLE.
UPPER GEYSER BASIN.

Corrected by observations made during season of 1909.

Geysers at Upper Geyser Basin	Height	Duration	Intervals of Eruption
Artemesia	50 ft.	10 min.	12 to 24 hrs.
Bee Hive	200 ft.	8 min.	12 hours to 40 days.
Castle	75 ft.	30 min.	26 hours (frequently misses).
Cliff	100 ft.	8 min.	4 to 8 hours.
Comet	60 ft.	1 min.	Irregular.
Cub (Big)	30 ft.	10 min.	With Lioness Geyser.
Cub (Little)	10 ft.	3 min.	With Lion Geyser.
Daisy	75 ft.	2 min.	45 to 60 min.
Economic	20 ft.	10 sec.	Follows Grand and plays every 5 min. for 2 days.
Fan	60 ft.	10 min.	4 to 6 hours.
Giant	250 ft.	90 min.	7 to 12 days.
Giantess	150 ft.	12 to 24 hrs.	16 to 25 days.
Grand	200 ft.	40 to 80 min.	2 to 20 days.
Grotto	30 ft.	30 min.	2 to 5 hours.
Jewel	40 ft.	1 min.	5 min.
Lion	60 ft.	8 min.	6 to 12 hours.
Lioness	100 ft.	10 min.	15 to 20 days.
Lone Star	75 ft.	10 min.	1 to 2 hours.
Mortar	30 ft.	5 min.	2 hours.
Oblong	35 ft.	5 min.	7 to 8 hours.
Old Faithful	150 ft.	4 min.	65 to 75 min.
Riverside	100 ft.	15 min.	7 hours.
Sawmill	35 ft.	2 hours.	2 to 3 hours.
Spasmodic	4 ft.	2 min.	2 to 3 hours.
Splendid	200 ft.		Ceased to play in 1892.
Surprise	100 ft.	2 min.	Irregular.
Turban	40 ft.	20 min.	With Grand Geyser.

little "spouter" is the fact that its formation surrounds the roots and stump of a tree, completely incrusting the same with its rich, black ornamentations.

The Silver Globe derives its name from the constant rising to its surface of large, silvery globules or bubbles of gas or steam, which, of course, immediately disappear on reaching the air.

Artemesia Geyser is situated between the road and the river, quite near the former, which is elevated some

twenty feet above the spring. Stepping to the edge of the bank, an excellent view of the crater is obtained, the crystal clearness of its waters allowing a distinct view in to its apparently bottomless depths. The spring is sixty feet in diameter and generally very little agitated, merely overflowing. The surrounding formation, quite unlike that of any other spring or geyser, is as hard as flint, and of a peculiar olive-green color. Although for the most part very quiescent, this spring has occasional pulsations in the nature of eruptions, at which times large quantities of water are forced out, fairly flooding the formation between it and the river. These eruptions occur at intervals of twelve to twenty-four hours. The bank of the Firehole, some thirty feet high at this point, is the most highly colored section of the river to be found in the Upper Basin. The best view is obtained from the bridle-path on the opposite side of the river. This trail leads south from the Splendid, crossing the Firehole just above its confluence with Iron Spring Creek, near which it joins the main road.

Morning Glory Spring.—A few hundred yards below Riverside Bridge is the Morning Glory Spring, which can be seen from a stage or carriage, a slightly elevated point of observation affording a better view. It is a silent pool some twenty feet in diameter, overflowing slightly at the west. The peculiar shape of its funnel-like crater, whose walls are delicately colored, together with the beautiful transparency of its waters, suggests its very appropriate name.

Upper Geyser Basin is triangular in form and embraces an area of about four square miles; it contains

twenty-six geysers and upwards of 400 hot springs. Iron Spring Creek bounds it on the west; timbered mountain slopes form the hypotenuse of the triangle, and a wavy line of dark forest conifers, its southern base. The main Firehole River drains it, centrally; its shelving banks are thickly pitted with steaming hot springs and studded with mounds and cones of geyserite. Here, grouped within the narrow space of, perhaps, a square mile, are the grandest and mightiest geysers known to man; and silent pools of scalding, meteoric water that for beauty of formation and delicacy of coloring are marvels. The surface of the basin consists, for the most part, of a succession of gentle undulations, each crowned with a geyser-cone or hot-spring vent and covered with layers of silicious sinter that give it a grayish-white, sepulchral hue. Clouds of vapor hang shroud-like above it; the earth trembles and is filled with strange rumblings, the air is heavy with sulphurous fumes, and vegetable life is extinct. In a paper read before the Cardiff (Wales) Naturalists' Society, Mr. Charles T. Whitmell said: "Nowhere else, I believe, can be seen, on so grand a scale, such clear evidence of dying volcanic action. We seem to witness the death throes of some great American Enceladus. Could Dante have seen this region he might have added another terror to his Inferno."

Fan and Mortar Geysers.—On the east bank of the Firehole, about 300 feet below Riverside Bridge, are located the Fan and Mortar Geysers. The former has an eruption every four to six hours, frequently following the Riverside, its ejected waters spreading out in

fan-shaped jets, from the fact of its having two crater orifices which throw out diverging streams. The pink geyserite forming its crater is quite unlike that of any other geyser. The Mortar, a few feet to the south, "plays" more frequently than the Fan, and, when viewed from the bridge above alluded to, resembles in its eruptions that particular piece of ordnance from which it derives its name.

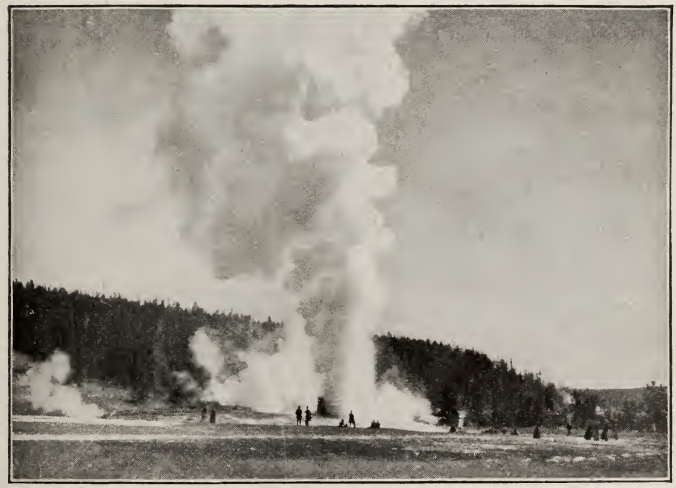
Riverside Geyser.—A short distance above the wagon bridge across Firehole River is seen the Riverside Geyser, whose cone is close to the water's edge; it consists of two chimney-like craters, the larger being at the same time the higher. The geyser "plays" from the lower opening only, though visitors are apt to arrive at a reverse conclusion when viewing the locality



WYLIE CAMP, UPPER BASIN.

between periods of eruption. An overflow of water from the lower crater is a certain indication of approaching activity, beginning about thirty minutes previous to eruptions and continuing until the outburst, which takes place about every seven hours, throwing an arching column to a height of eighty or one hundred feet, the entire contents of the discharge falling into the river.

Grotto Geyser.—By far the most curious geyser cone of all is that of the Grotto, situated close by the roadside, some 500 feet northwest of the Giant. The various cave-like opening in its peculiarly shaped cone give rise to its name. Its eruptions take place about four times daily, each display lasting fully thirty min-



GIANT GEYSER, UPPER BASIN.

utes, though, owing to its singular construction, its waters are not thrown to any considerable height, twelve to thirty feet. During eruptive periods, however, immense volumns of steam escape with great force. Separated from the main cone some twenty feet is a smaller crater which acts with the main geyser during eruptions.

Giant Geyser.—Nearly a mile from the Hotel is this monarch of geysers, situated, like many others, in close proximity to Firehole River. Its cone, about ten feet in height, though some 200 feet from the roadway, is conspicuous. A few feet to the north is an irregular mound, from which considerable steam escapes from sundry small holes, undoubtedly connected in some manner with the geyser and acting as its escape valves. The platform of deposit upon which the cone stands is about seventy-five feet in diameter. The cone is broken on the west side from the apex nearly to the base, affording a good view of the interior of the crater, which is almost constantly in a state of turbulent boiling and splashing. In 1881 the break in the cone was not nearly so large, not more than half its present proportions, the enlargement being without a doubt the result of an unusually violent eruption.

The Giant usually "plays" about once a week, for a period of one and one-half to two hours. An immense column of water is lifted 250 feet in to the air at its initial outburst, the height of the same gradually decreasing until the close of the display, which is preceded by a rumbling sound not unlike a distant train of moving cars. Those fortunate enough to have been

eye-witnesses of one of its gigantic displays have enjoyed a treat most rare.

Daisy Geyser, located near the **White Pyramid** and the **Wylie Upper Basin Camp**, plays about every hour, and to a height of 75 feet. Near it is the crater of the extinct Splendid Geyser whose eruptions until 1892 were very powerful.

Punch Bowl Spring.—The wagon road leading westward from the Splendid toward Black Sand and Sunset Basins passes the Punch Bowl, by far the handsomest spring of its peculiar class to be found in the geyser region, if not in the world. Situated on the summit of a small mound of silicious deposit, some five feet above the general level, it is about ten feet in diameter, with a glittering rim of brilliantly colored formation eighteen inches in height. The constant boiling of its contents, though only a small part of its surface is agitated, as the bubbles of escaping steam and gas arise, produces a wave-like undulation over the entire spring and gives it a steady and not inconsiderable overflow. A small cave-like opening on the east side of the mound or cone is very handsome, having the appearance of being lined with satin of the rarest beauty and texture. Early visitors to the Park during the seasons of 1873 and 1875 speak of this spring as being an active geyser, and during 1888 similar reports gained currency. Nothing, however, is certainly known as to the correctness of these reports.

Black Sand Basin and Specimen Lake.—Dr. Peale's description of Black Sand Spring is interestingly comprehensive, and is as follows: "This is one of the most



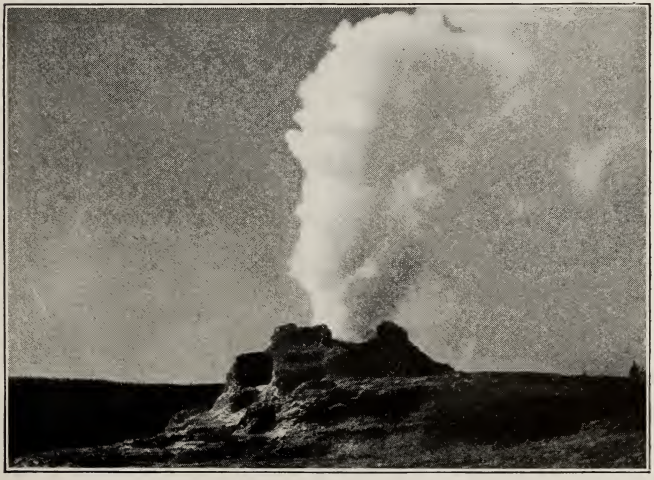
PUNCH BOWL SPRING, UPPER BASIN.

beautiful springs in the Upper Basin. It has a delicate rim, with toadstool-like masses around it. The basin slopes rather gently toward a central aperture that, to the eye, appears to have no bottom. The water in the spring has a delicate turquoise tint, and as the breeze sweeps across its surface, dispelling the stream, the effect of the ripple of the water is very beautiful. The sloping sides are covered with a light brown crust; sometimes it is rather a cream color. The funnel is about forty feet in diameter, while the entire space covered by the spring is about 55x60 feet, outside the rim of which is a border of pitch-stone (obsidian) sand or gravel sloping twenty-five feet. From its west side flows a considerable stream, forming a most beautiful channel, in which the coloring presents a remarkable

variety of shades; the extremely delicate pinks are mingled with equally delicate tints of saffron and yellow, and here and there shades of green." The overflow from this spring spreads out over a large area, called **Specimen Lake,** which deserves more than passing notice. Absorption of the surrounding silica has destroyed many of the trees in the vicinity, the dry, lifeless trunks adding to the attractiveness of the place, geologically speaking, by affording the appearance of petrifactions.

Leaving Black Sand Basin, the next attractions are Sunset Lake and Emerald Pool, reached by a footbridge over Iron Spring Creek.

Sunset Lake is a beautifully colored pool which steams constantly and, though always boiling hot, never erupts.



CASTLE GEYSER, UPPER BASIN.

Emerald Pool, is the most fascinating body of water in the basin. Its deep emerald color blends to yellow at the edge, and the formation is a dark red immediately around it. It is hot but never boils and is slightly overflowing.

Cliff Spring, near the foot-bridge, boils turbulently and has been known to erupt, throwing its scalding water several feet high.

Handkerchief Pool, not far distant, is a source of great amusement. A handkerchief dropped in to the water will disappear but will be brought to the surface again a few moments later (—usually).

The road from Sunset Basin leads to the Old Faithful Inn past the **Three Sisters,** attractive hot springs, and the Castle Geyser.

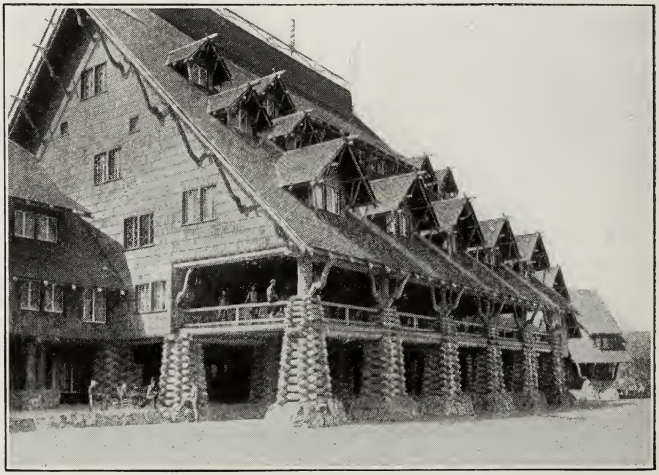
Castle Geyser.—The Castle is at once recognized, as it occupies a very prominent position close by a point of timber on the main road midway between the Splendid Geyser and Old Faithful, visible from nearly all points of the basin. The great amount of deposit, perhaps 100 feet in diameter at its base, and the possession of the largest cone in the whole region, while giving it an air of conspicuousness at the same time indicate that it is one of the oldest active geysers in the Park. The broken condition of its cone on the east side renders possible an easy ascent to its summit, which is about twenty feet across. The orifice of the geyser tube in the top of the cone is about three feet in diameter, quite round, and is lined with a formation of bright orange color. Eruptions of the Castle occur at intervals of about twenty-six hours, preceded by the occasional

throwing out of jets of water to the height of fifteen or twenty feet, perhaps. These premonitory symptoms of eruption generally continue five or six hours, when more violent demonstrations, during which columns of water are shot upward to a height of fully seventy-five feet, ensue, and, continuing for half an hour or so, are followed by a "stream period" similar to that of the Giantess. Several times each season it has eruptions of an unusual character, in which its columns of water are thrown to twice their usual height and its subsequent "steam periods are proportionately forcible. A violent boiling spring is situated near the base of its cone, on the north side, and used to be a favorite resort of the "camper-out" in earlier days, as excellent coffee can be prepared in this spring in fifteen minutes, and other edibles requiring the action of boiling water to prepare them for the table, are well and thoroughly cooked in a correspondingly short time.

Castle Well, a large, crested spring 100 feet north from the Castle, is usually very handsome. It generally is filled to overflowing, and the bottom and edges of the channel leading out of the north side are very highly and beautifully colored. This spring is some twenty feet in diameter.

Old Faithful Inn, the most extensive log structure yet devised by man, with every convenience and luxury of the modern hotel, is the latest triumph in utilizing primitive material in constructing so unique a building. The rough blocks of stone which form its foundation appear as natural as when found at the base of the cliffs of the surrounding mountains.

The interior is surprising for the grandeur of vast forests conquered. Massive logs tapering on each ascending balcony appear as giant trees. The staircase leading to the lookout has split logs for steps. Windows of diamond shaped panes and dainty French curtains are exquisitely beautiful against the setting of rough logs. Elbows of natural branches gathered from the neighboring forests form the braces for the numerous gables and frame the many balconies and stairways surrounding the office; while timbers, braced this way and that, support the high roof. The huge doors of the entrance and dining room are noticeable to all. Their hinges and quaint iron locks, together with the immense clock, were hand forged from bar iron. The old time fire place is a welcoming sight and



ENTRANCE TO OLD FAITHFUL INN.

its chimney, sixteen feet square at its base and made of large lava blocks, towers high through the roof four stories above. The chimney contains four large and four small fire places and fastened against it is the immense clock keeping mountain time. In another chimney in the dining room is constructed the old time spit and oven. In contrast to the rough logs there appear electric candles, hardwood floors, Mission furniture and gay rugs and curtains, all of which give a warmth and richness to the building. The bell on the roof announces interesting and extraordinary events and tolls a quarter of an hour before the opening of the dining room. The center of the building rises eight stories high, surmounted by the lookout that gives a panoramic view of the geyser basin. From half a dozen golden topped flag staffs float the emblems of various nations. At night, by the aid of a powerful search light, one discerns geysers in action, bear feeding at the edge of the timber, while the illumination of Old Faithful Geyser in action is a sight never to be forgotten. The Old Faithful Inn was built at a cost of two hundred thousand dollars and was open to the public for the season of 1904.

Old Faithful Geyser.—Less than 1,000 feet east, and in plain sight from the hotel, is located this reliable friend of the tourist. Every sixty-five minutes (with rarely a variation of five minutes) day and night, summer and winter, this wonderful freak of nature gives its exhibition. The position and direction of the sun and wind vary the appearance of this geyser, which is one of the most popular in the Park, because of the



OLD FAITHFUL GEYSER AT SUNRISE.

remarkable regularity with which its eruptions occur, and the excellent opportunities afforded for observation. Eruptions by moonlight, at sunrise or sunset, in a storm or with clear weather, with their varied effects, command the attention of the visitor, regardless.

Its eruptions begin with a few spasmodic spurts, during which considerable water is thrown out; these are followed in from five to eight minutes by a column of hot water two feet in diameter, which is projected upwards to a height of 125 to 150 feet, when it remains apparently stationary for about three minutes. The crater is an oblong opening two by six feet on the inside and four by eight on the outside; it is situated on a mound of geyserite, measuring at the base 145x215

feet, at the top 20x54 feet, the whole rising about twelve feet above the level surrounding. This mound is composed of layers of deposit in a succession of distinctly marked terraces which are full of shallow, basin-like pools, the water in which is clear as crystal, and their edges or rims exquisitely beaded and fretted, their bottoms showing delicate tints of rose, white, saffron, orange, brown and gray.

The north end of this crater has large globular masses of beaded, pearly deposit, and its throat is a rust color.

Bee Hive Geyser.—Crossing the footbridge leading to the east side of Firehole River, this geyser is found about 100 feet from the river bank. Its name was suggested by the peculiar shape of its cone, which is



OLD FAITHFUL INN FROM BEE HIVE CONE.

about four feet in height, three feet in diameter at the top, by seven at the base and nearly circular. Its nozzle-like opening, or crater, is about eighteen inches across at the apex, narrowing gradually till the base of the cone is reached. The Bee Hive's eruptions are irregular, occurring at intervals of from 12 hours to 40 days. It has, however, been known to have periods of activity of not more than three hours apart, and, per contra, to remain inactive for several weeks. There are, usually several eruptions, about eight hours apart, immediately following the Giantess. There is no terrace-shaped deposit surrounding this geyser, as is the case with most of the others, and it is the only one close to which persons can approach with perfect safety while in action. So hot is the water ejected that it, for the most part, evaporates while in the air. The height attained varies from 170 to 220 feet.

A miniature geyser, or indicator, a few feet from its base, is, generally speaking, a faithful forerunner of activity of the Bee Hive, by shooting up jets or spurts of water, which are followed in about fifteen minutes by a column of steam and water from the main crater, hurled upwards with great force and in a steady stream.

Giantess Geyser.—Some 300 feet east from the Bee Hive, upon the highest point of elevation in this portion of the Upper Basin, is located the Giantess, considered by many a geyser of unusual importance, whose eruptions occur at intervals of from sixteen to twenty-five days. However, it is necessary that, in order to witness and fully appreciate its entire display, one remain in its vicinity at least twelve hours. Its crater,

bowl-shaped, and some sixty feet in depth, is 24x30 feet in size at the surface, and is wholly devoid of the highly colored ornamentation and cone so characteristic of other geysers in this region. As the crater rapidly fills with water after an eruption, it resembles, to most visitors, a large slightly agitated pool of sapphire-tinted water, with no outward indication of being the powerful geyser which it really is. At the beginning of an eruption the entire contents of the crater are instantly forced out, flooding the whole region round about. Relieved from this immense pressure of water, the geyser at once begins to eject forked-like columns of water and steam into the air, throwing them to a height of from 60 to 150 feet above the surface. These displays continue at short intervals throughout a period of from 12 to 24 hours, or until the water in the geyser tube is entirely exhausted, when an interesting "steam period" takes place, lasting nearly an hour, and producing a roaring sound audible in all parts of the basin, and when occurring at night often awakens the guests at the hotel. In the earlier stages of eruption, during which the emptying of the crater takes place, shocks, similar to those produced by earthquakes, are distinctly felt throughout the basin, while the disappearance of adjacent springs, and the generally succeeding activity of the Bee Hive, give rise to the theory of subterranean connections between geysers and springs upon this "bench."

Sponge Geyser.—A short distance to the north of the Giantess is this curious little geyser, whose slightly raised, circular cone, strongly resembling a

huge sponge in the character and color of its formation, attracts the eye of the passerby.

Lion, Lioness and Cubs.—The Lioness and Cubs occupy a conspicuous mound of geyserite to the west of the Lion, which has an irregular flat-topped cone about four feet in height, and is separated from the rest of the group by a slight depression. Eruptions of the Lion occur daily, those of the Lioness not as regularly, the Cubs play more frequently, and it often happens that the Lioness and Cubs play together, though it rarely occurs that the Lion and Lioness are seen in eruption at one and the same time. The former is the most powerful of the group, and throws a column of water fifty or sixty feet high, continuing in action about eight minutes.



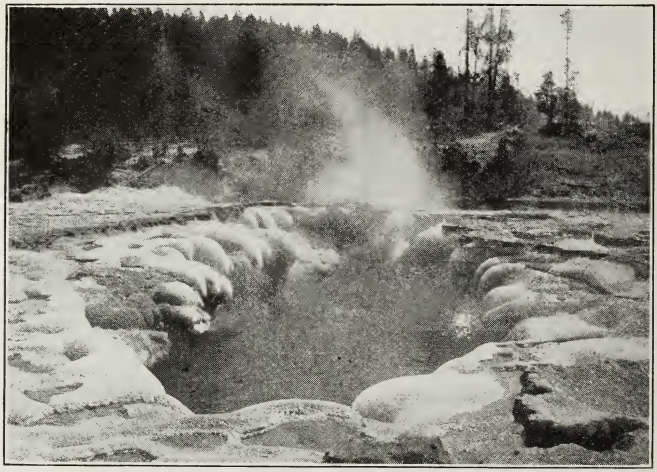
UPPER GEYSER BASIN.

Sawmill Geyser.—Leaving the group just described, the pathway leads down the basin, passing through a point of timber close by the river, emerging from which one is confronted by a number of active springs and small geysers (situated upon a "bench" similar to the one just left), among which are the Tardy, Bulger, Spasmodic and Sawmill, the last named being the chief attraction, as well as the largest in the group. This locality may be also reached from the west side of the river by means of a footbridge near the Castle.

The basin of the Sawmill is shallow, and about forty feet in diameter, inclosing another basin of about half its size, in the center of which is located its funnel-shaped crater, some seven feet across the top, and sloping to a small orifice. Its eruptions are very frequent, usually five or six a day, each continuing in operation fully an hour. The peculiar noise accompanying activity (suggesting its name) coupled with its spiteful vigor, renders this little spouter quite attractive.

Grand and Turban Geysers.—At the base of a rocky bluff, some 500 feet northeast from and nearly opposite the Castle, are situated the above important geysers. An observer is naturally led to suppose that the irregular, pit-shaped crater, noticeably prominent, is that from which the Grand plays; such is not the case, however, as this crater is merely a water basin or reservoir, undoubtedly having connection with the Turban, but entirely unconnected with the Grand, which plays from an opening situated a few feet to the south, surrounded by cushion-like masses of geyserite forma-

tion. Eruptions of the Grand are somewhat irregular, usually occurring at intervals of from two to twenty days. The outbursts of the Grand are among the finest to be witnessed in the Park, having a series of ten or twelve distinct eruptions, lasting from forty to eighty minutes, and throwing at each discharge forked columns of water to a height of 200 feet, allowing ample time for visitors who may chance to be in any other part of the basin, to reach its vicinity in time to witness some, at least, of its several magnificent displays. The Turban plays, mainly, from a fissure-like opening in its formation, immediately north of its main crater, which meantime, is greatly agitated, often overflowing, and discharging quite large quantities of its hot flood into the crater of the Grand, just below it on the south.



CRATER OF OBLONG GEYSER.

The frequency of the Turban's eruptions occasionally presents the unusually fine spectacle of both geysers, Grand and Turban, in action at the same time. On the way from this point to the Giant and Grotto (reached by a foot-bridge across the Firehole near the Oblong), **Beauty Spring** and Economic Geyser are passed, the former one of the large silent pools of the Upper Basin, remarkable for the vivid coloring and exquisite beauty of its highly ornamented margin, and its limpid blue waters.

Economic Geyser, named from the curious fact that there is no overflow nor waste whatever from it, as its waters, though frequently thrown fifteen or twenty feet in the air, fall again into the crater and disappear. It is a frequent surprise to visitors who happen along when it is quiet, to see an eruption so sudden and spiteful, occurring without warning, at varying intervals. It follows the Grand Geyser and plays every five minutes for two days.

Oblong Geyser.—Quite near the river bank, a short distance south from the Giant, is situated the Oblong. Its crater is about 30x50 feet in size—hence its name—the interior of which, immediately following an eruption, is exposed to a depth of several feet, and, lined as it is with large globular masses of formation, affords the finest view of interior geyser structure to be seen in the entire Park region. Two large openings can be clearly seen in the bottom of the crater, and when the water is not agitated the eye readily penetrates them to unknown depths. Eruptions of the Oblong vary from six hours to two days, lasting only a few minutes,

during which the contents of the crater are raised bodily from twenty to thirty-five feet.

It seems proper at this time to state the most generally accepted theory of geyser action as advanced by the foremost geologists of the times, in order to do away with the many erroneous ideas on this important subject.

GEOLOGICAL.—A geyser may be defined as a periodically erupting hot spring. Its water is not volcanic, but simply hot meteoric water; so a geyser is not a volcano ejecting water but a true spring. Were the heat sufficient and the tube long enough all hot springs would erupt.

Sounds like cannonading are heard directly preceding a geyser eruption; this is caused by the collapse of steam bubbles from the hotter region below rising through the cooler strata of water. The surface of the pool, from which the geyser plays, bulges and overflows, and sometimes jets of water are thrown upward preceding activity.

The famous scientist R. W. Bunsen, after making a careful study of geyser action by extensive observation and experiment, advanced the following authoritative explanation:

It is well known that the pressure in water (being due to gravity) increases with the depth; and furthermore, that the boiling point rises with the increase in pressure. The geyser tube which extends deep into the earth is filled with water from the higher tracts of land around; the heat is from the buried masses of

lava not yet cool, lava being such a great non-conductor and retainer of heat.

The typical geyser eruption may be divided into five stages, namely, (1) the water remains practically stationary after the tube has filled, and becomes steadily hotter, (2) steam bubbles rising through the cooler strata of water, collapse, producing the characteristic premonitory "cannonading," (3) steam forms below in sufficient quantity to cause the surface to overflow, thus the pressure is lessened in all parts of the tube, and (4) the great burst of steam ensuing, ejects all the water from the tube, (5) the steam follows and while the tube is filling for another eruption, there is no activity other than occasional puffs of steam.



KEPLER CASCADES.

From the Upper Basin to Yellowstone Lake the route is over the summit of the continental divide, near Shoshone Lake, the head waters of Lewis Fork of Snake River (a branch of the Columbia that empties into the Pacific Ocean); and in a few miles returns to the Atlantic Slope at Yellowstone Lake, whose waters reach the ocean through Yellowstone, Missouri and Mississippi rivers.

Leaving the geysers, the road follows up the Madison River (known as the Firehole River during its meandering of the Geyser Basins), crosses the same and climbs a gentle ascent to

Kepler Cascades, about a mile and one-quarter distant, whose waters leap from shelf to shelf of a rocky chasm in a series of enchanting falls, aggregating 100 to 150 feet in height, and whose charms are enhanced by the dark background of forest on either hand. The roadway continues up the Madison about two miles to the third crossing, when it leaves the river, following the course of Spring Creek nearly to the summit of the Divide.

Lone Star Geyser is off the main road and is visited only as a side trip. Its cone, twelve feet high, has a large central opening and numerous adjacent small ones from which water is thrown during eruptions. The cone is the principal attraction of this geyser although the eruptions are at times 75 feet high.

The road winds up Spring Creek Canyon to Craig Pass in a narrow gorge. At this point a trail leads south a half-mile to Shoshone Lake through Norris Pass.

The Continental Divide.—This great range of mountains extending from Mexico to Canada through the western portion of the United States, is the water-shed of the Continent and a salient feature of Yellowstone Park—entering near the southeast corner and extending northwest between the head waters of the Yellowstone River on its eastern slope, and Snake River on the western, separating Yellowstone Lake from Shoshone Lake by less than a dozen miles.

On the summit of this range, a few miles south of Yellowstone Lake, is Two Ocean Pond, a small lake with two outlets, one into the Atlantic through the Yellowstone and Missouri rivers, the other into the Pacific through Snake River, a branch of the Columbia. The Divide passes within a few miles of the Upper Geyser Basin and makes its exit from the Park about midway of the western boundary; the general direction after leaving the Park is westerly for about fifty miles where it forms the dividing line between Idaho and Montana.

Isa Lake at the first crossing of the Divide between the Upper Basin and De Lacy Creek is also a "two-ocean" pond.

Shoshone Point affords one of the most commanding views of this ride. It overlooks the country to the south with Shoshone Lake in its beautiful valley in the foreground.

Shoshone Lake has an area of about a dozen square miles, with an irregular shore line. Shoshone Geyser Basin, situated on the west shore of the lake, has sev-



JACKSON LAKE AND TETON MOUNTAINS.

eral large geysers and numerous interesting springs; it is reached by trail from the Lone Star Geyser.

On a clear day from Shoshone Point may be seen the three snow-capped "Sentinels" of the Teton Mountains fifty miles distant, that form a portion of the boundary between the states of Wyoming and Idaho, their dizzy heights, full 14,000 feet, overtopping all other peaks of the Rockies.

From Shoshone Point the drive is less attractive; however, it again crosses the continental divide at a "pass" so level that it is difficult to know when the summit is really reached.

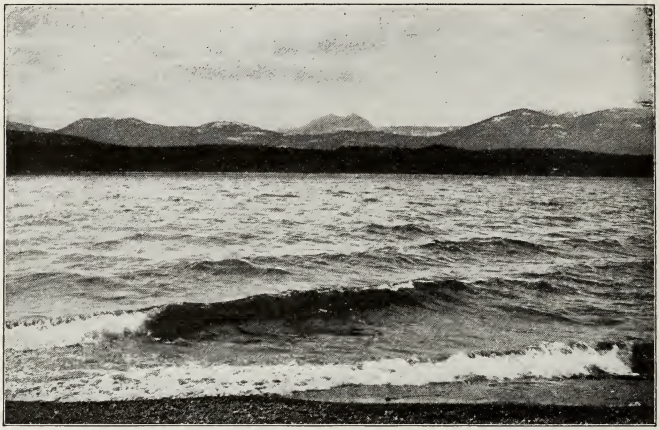
Lake View.—A mile from the lunch station at Thumb Bay, one catches the first glimpse of Yellowstone Lake. From this point Mr. David E. Folsom,

of the Folsom and Cook exploring party in 1869, says: "As we were about departing on our homeward trip we ascended the summit of a neighboring hill and took a final look at Yellowstone Lake. Nestled among the forest-crowned hills which bounded our vision lay this inland sea, its crystal waves dancing and sparkling in the sunlight as if laughing with joy for their wild freedom. It is a scene of transcendent beauty which has been viewed by but few white men, and we felt glad to have looked upon it before its primeval solitude should be broken by the crowds of pleasure seekers which at no distant day will throng its shores."

Thumb Bay Lunch Station is pleasantly situated on the shore of Yellowstone Lake facing Thumb Bay and the **Wylie Thumb Camp** is near at hand at the edge of the timber.



MOONLIGHT ON YELLOWSTONE LAKE.



YELLOWSTONE LAKE AND SLEEPING GIANT.

The Southern Entrance to the Park.—A wagon road has been constructed south from Yellowstone Lake, passing Lewis Lake and continuing down the valley of Snake River to the southern boundary of the Park and Jackson Hole.

At the Thumb there are several geyser cones, paint pots and springs. The **Paint Pots** are not so large as those at the Lower Basin but they are different. **The Lake Shore Geyser,** 100 yards from the Hotel, plays at intervals several feet high. The **Fishing Cone** was named by the Expedition of 1870. This cone, with a boiling spring in its centre projects above, and is surrounded by, the cold water of the Lake. This is the famous place where fishermen stand and, after catching trout in the Lake, boil them while still on the hook in the hot spring. Tourists have an opportun-

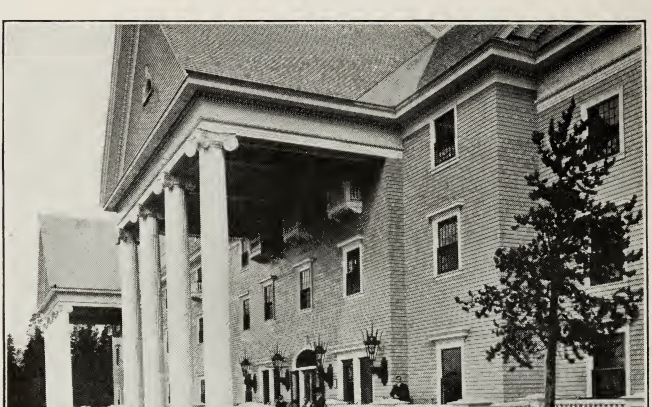
ity of taking a steamer or launch from Thumb Bay Lunch Station to the Colonial Hotel at the Lake outlet—a very pleasant ride.

The Natural Bridge is passed on the drive around the Lake four miles from the Lake Hotel. It spans a small creek and looks quite symmetrical from the lower side. Its abutments are thirty feet apart, and the arch sixty feet high.

The Yellowstone Lake is the largest at its altitude (7,741 ft.) in the world with the exception of Lake Titticacea, Peru. It is twenty miles across and of very irregular outline. The Absaroka Range of snow-capped mountains rise from the water's edge to altitudes of ten or eleven thousand feet.



TROUT FISHING, LAKE OUTLET.



COLONIAL HOTEL, YELLOWSTONE LAKE.

Several islands dot the surface of this icy sheet of water, Stevenson and Frank Islands being the largest. The depth of this lake has defied the sounding line. Sheltered as it is, the surface is seldom rough. The Yellowstone River is at once its principal affluent and sole outlet, its upper portion draining a considerable area tributary to the lake on the southeast, and the vast body of water thus accumulated in this natural mountain reservoir serves not only to furnish a never-failing supply for one of the grandest of the Missouri's tributaries, but supplies the means of successful irrigation of the entire lower Yellowstone Valley.

Sleeping Giant.—In the mountain range on the east side of the lake can be seen the "Sleeping Giant." It is formed of the peaks of Saddle Mountain in con-

nection with a mountain range several miles this side.

Fishing Grounds.—In the river at the lake outlet are the fishing grounds about a mile from the hotel, while at many places between the lake and canyon excellent fishing is had from shore. During the trout season (July to September), no better fishing can be found. They average about one and one-half pounds each, and are of the *salmo myhiss* variety—a catch of 20, three or four hours before sundown, is not infrequent.

Hotel at the Outlet.—This spacious and elegantly appointed hotel tends greatly toward making Yellowstone Lake the resort par excellence of the Park. Here everything is so arranged that guests can spend the entire season, if they so desire, making short, easy trips of sight-seeing or exploration to all points of the great reserve. The falls and canyon are distant but 17 miles, a well constructed road leading thither; the great geyser basins are scattered along a stage route, whose extreme length is not above 40 miles from this hotel, while to the eastward some fifty miles lies the **Hoodoo Region or Goblin Land**, a weirdly wild region, as yet visited by only a few.

To visit any or all of the points circumjacent to this grand mountain lake, vehicles of all kinds, saddle and pack animals, guides, rowboats, launches and steamers, are ever at command. The **Wylie Lake Camp** is pleasantly situated near the lake outlet on the west of the road.

Eastern Entrance to the Park.—The completion of the road through the Eastern Entrance to Cody, Wyoming, a terminus of the "Burlington" system, opens

up the most scenic portion of Wyoming to the public. Hotels have been constructed between Cody and the Park for the accommodation of the traveler. Camping outfits and transportation can be secured at Cody for the Park tour which will undoubtedly be largely patronized by lovers of scenery, camp-life and fishing.

A substantial bridge spans the Yellowstone River about two miles from the Lake Hotel. The road passes through the valley of Pelican Creek, along the south shore of Turbid Lake, and gradually ascends the mountains along the foot hills of Avalanche Peak to **Sylvan Pass,** on the headwaters of Clear Creek. Before the pass is reached one of the finest panorama views of the Park is to be had. Yellowstone Lake occupies the foreground, and the distant snow-clad peaks of the Tetons, Quadrants, Electric Peak, Mount Washburn, and the entire Rocky Mountain range within the Park, outline the horizon. It is about eighteen miles from the Lake Hotel to Sylvan Pass, and a side trip to this rugged portion of the Park is now possible.

Yellowstone Lake to Falls and Canyon.—The road from the lake to the Grand Canyon follows the valley of the Yellowstone the entire distance, seventeen miles, and most of the way quite near the river. It passes Mud Geysers, Sulphur Mountain, and across Hayden Valley.

Mud Geysers are about five miles from the Lake Hotel and consist of several large craters filled with blue, pasty mud, one and all emitting odors far from agreeable. The attractive feature of this locality is the **Mud Volcano,** situated a few rods to the west of

the road, at the base of the cliff, whose funnel-shaped crater is thirty feet in depth, formed by mud ejected from below through a cave-like opening, out of which a sickening, lead-colored mass of mud, of the consistency of soft mortar, is constantly belched, accompanied by dull, muffled sounds, and in manner at once repulsive and fascinating.

During the summer of 1898 visitors witnessed the most violent eruptions of the Mud Volcano ever recorded. The mud-plastered trees in the vicinity are still in evidence of these terrific explosions.

Green Gable Spring a few rods north of the Mud Volcano, is a beautiful overflowing hot pool beneath a natural rock gable colored a rich green. This most attractive sight is in pleasing contrast to the violence of the Mud Volcano.



GRAND CANYON BRIDGE.

Hayden Valley extends from Mud Geysers to Alum Creek along the Yellowstone and west from the river to Mary Mountain. It is the largest valley in the reservation, and especially adapted as a range for game, being well watered by Trout and Alum Creeks, and protected on the north and west by a heavily timbered range.

Sulphur Mountain consists of a group of isolated hills or "buttes," each about 150 feet high, of which a splendid view is obtained from the roadway that skirts along their western base. The fumes arising from the various vents are exceedingly disagreeable. The chief attraction is a large boiling spring at the base of the mountain on the west side.



UPPER FALLS OF THE YELLOWSTONE—112 FEET.

The road from Sulphur Mountain to the Canyon Hotel soon joins the main road along the river, passes over a rolling country, and skirts the banks of the Yellowstone until nearly to the Upper Falls.

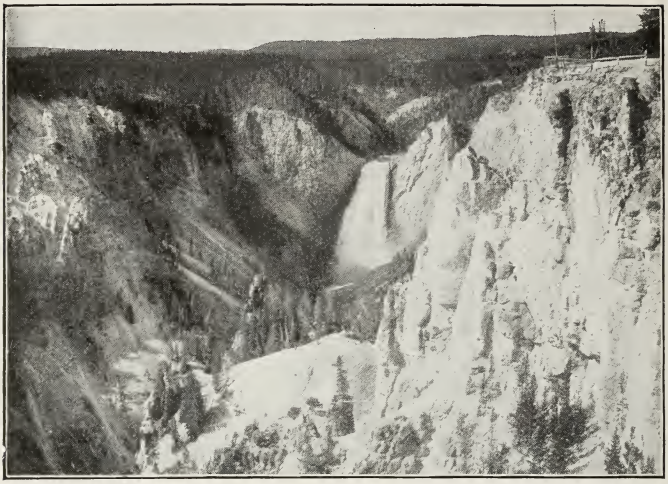
Grand Canyon Bridge.—The construction of this magnificent concrete bridge over Yellowstone River, at the head of the rapids above the Upper Falls, affords visitors an opportunity of now viewing the Grand Canyon from the opposite side at Artists' Point where an unobstructed view of the Falls and Canyon is obtained.

The Upper Falls has a perpendicular drop of 112 feet, and the water, striking the shelving rock formation at the bottom of the abyss, shoots out in rocket-like columns. Above the falls a jutting point of rock affords an excellent view of the rapids and foaming waters rushing over the precipice. A footpath leads to the bottom of the Upper Falls, (where very fine brook trout fishing may be enjoyed); and midway between this point and the Lower Falls Cascade Creek enters the river.

Crystal Falls is below the bridge which spans the creek. The aggregate fall, including the cascades above, is about 130 feet, and a ladder to Grotto Pool allows an inspection of them, though these minor attractions possess litle, if any charm to the tourist when so near the grandest of earth's marvellous scenic displays.

The Wylie Canyon Camp, a night station, is located near Canyon Junction.

The Great Falls of the Yellowstone, 360 feet in



POINT LOOKOUT AND GREAT FALLS.

height, is a quarter of a mile below the Upper Falls. Not far from the Canyon Hotel is a recently-built stairway descending to the very brink of the Great Falls. This view overlooking the awful plunge of seething waters twice as high as Niagara, is grand almost beyond expression.

Gazing down the canyon from the brink of the Falls one sees Point Lookout rising 1,200 feet above the river. Almost directly opposite, on the right hand side of the canyon, is Artist's Point, so called from being the position selected by Mr. Thomas Moran from which to paint his celebrated picture now hanging in the nation's capitol at Washington.

Grand Canyon Hotel is situated on an eminence one thousand feet above the Lower Falls. The view of

the surrounding country is especially fine; one overlooks the canyon's gorge, which can only be seen to advantage from the road along its edge and from the several points. The canyon hotel is modern throughout and equal to any of the excellent stopping places in the Park. A pleasant side trip can be made to Mount Washburn and other places in the vicinity.

Point Lookout.—The driveway follows, as nearly as practicable, the very edge of the canyon from the falls to Inspiration Point, about three miles. Point Lookout is about half a mile below the falls, and commands altogether the best combined view of the Great Falls and Grand Canyon. It is fully 1,200 feet above the river and nearer the hotel than any of the several points of observation. **Red Rock** under Point Lookout, to which a perfectly safe trail leads down the ravine near the point, affords the best view of the falls themselves possible for tourists to obtain.

Grand View.—There are many projections between Lookout and Inspiration, from which glimpses of the canyon may be had. Grand View is about midway between Point Lookout and Inspiration Point, nearly opposite **Artist's Point** on the opposite side of the canyon. It affords an excellent view of the canyon and of the rugged cliffs about Inspiration Point.

Inspiration Point is considered by many as being, of all points, the best from which to see and appreciate the vast immensity of the canyon; it is two miles from Point Lookout and 1,500 feet above the river.

Glacial Boulder is passed on the drive from the hotel to Inspiration point on the north side of the canyon.

This huge block bespeaks the great transporting power of the glaciers; it is alone among mountains and canyons of a finer rock texture and was brought from a point many miles distant from its present resting place.

The interestingly graphic and, withal, faithful pen picture of the **Grand Canyon and Great Falls of the Yellowstone,** by the Rev. Dr. Wayland Hoyt, follows:

"Look yonder! Those are the Lower Falls of the Yellowstone. They are not the grandest in the world, but there are none more beautiful. There is not the breadth and dash of Niagara, nor is there the enormous depth of leap of some of the waterfalls of the Yosemite. But here is majesty of its own kind, and beauty, too. On either side are vast pinnacles of sculptured rock.

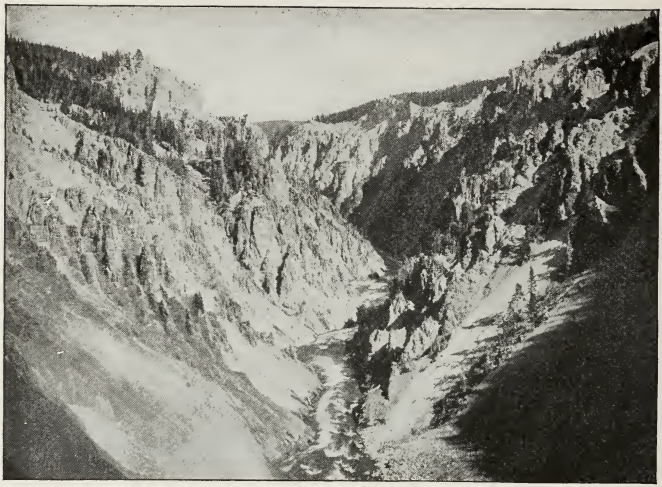


GREAT FALLS OF THE YELLOWSTONE—360 FEET.



A PARK DEER.

There, where the rock opens for the river, its waters are compressed from a width of 200 feet between the Upper and Lower Falls, to less than 100 feet when it takes the plunge. The shelf of rock over which it leaps is absolutely level. The water seems to wait a moment on its verge; then it passes, with a single bound, 360 feet into the gorge below. It is a sheer, unbroken compact, shining mass of silver foam. But your eyes are all the while distracted from the fall itself, great and beautiful as it is, to its marvelous setting; to the surprising, overmastering canyon into which the river leaps, and through which it flows, dwindling to but a foamy ribbon there in its appalling depths. As you cling here to this jutting rock, the falls are already



GRAND CANYON, FROM BRINK OF FALLS.

many hundred feet below you. The falls unroll their whiteness down amid the canyon glooms. * * * These rocky sides are almost perpendicular; indeed, in many places the boiling springs have gouged them out so as to leave overhanging cliffs and tables at the top. Take a stone and throw it over; you have to wait long before you hear it strike. Nothing more awful have I ever seen than the yawning of that chasm. And the stillness, solemn as midnight, profound as death. The water dashing there, as in a kind of agony, against these you cannot hear. The mighty distance lays the finger of silence on its white lips. You are oppressed with a sense of danger. It is as though the vastness would soon force you from the rock to

which you cling. The silence, the sheer depth, the gloom burden you. It is a relief to feel the firm earth beneath you feet again, as you carefully crawl back from your perching place.

"But this is not all, nor is the half yet told. As soon as you can stand it, go out on that jutting rock again and mark the sculpturing of God upon those vast and solemn walls. By dash of wind and wave, by forces of the frost, by file of snow plunge and glacier and mountain torrents, by the hot breath of boiling springs, those walls have been cut into the most various and surprising shapes. I have seen the 'middle age' castles along the Rhine; there those castles are reproduced exactly. I have seen the soaring summit of the great cathedral spires in the country beyond the sea; there they stand in prototype, only loftier and more sublime.

"And then, of course, and almost beyond all else, you are fascinated by the magnificence and utter opulence of color. Those are not simple gray and hoary depths, and reaches and domes and pinnacles of sullen rock. The whole gorge flames. It is as though rainbows had fallen out of the sky and hung themselves there like glorious banners. The underlying color is the clearest yellow; this flushes onward into orange. Down at the base the deepest mosses unroll their draperies of the most vivid green; browns, sweet and soft, do their blending; white rocks stand spectral; turrets of rock shoot up as crimson as though they were drenched through with blood. It is a wilderness of color. It is impossible that even the pencil of an artist can tell it. What you would call, accustomed to the softer tints of

nature, a great exaggeration, would be the utmost tameness compared with the reality. It is as if the most glorious sunset you ever saw had been caught and held upon that resplendent, awful gorge.

"Through nearly all the hours of that afternoon until the sunset shadows came, and afterwards amid the moonbeams, I waited there, clinging to that rock, jutting out into that overpowering, gorgeous chasm. I was appalled and fascinated, afraid, and yet compelled to cling there. It was an epoch in my life."

Grand Canyon to Norris Geyser Basin.—The twelve-mile drive between the Canyon and Norris is through an undulating pine forest the greater part of the distance. It passes over a "divide" separating the Yellowstone from the Missouri at an altitude of more than 8,000 feet. Between the five and six-mile posts, on the south side of the road is seen the **Wedded Trees. Virginia Cascades,** about three miles from Norris, are much admired, being quite unlike the many falls and cascades seen throughout the Park.

(Tourists entering the Park at the Western Entrance, Yellowstone, Mont., will find the description of the route from Mammoth Springs to Gibbon Junction pages 12 to 34.)

Side Trip to Mount Washburn. A trip to Mount Washburn may be made from the Grand Canyon; the new road leads up the valley of Cascade Creek and over the mountain to Dunraven Pass.

Vehicles built expressly for the purpose are used to transport passengers over the summit. No other vehicle will be allowed on the summit road owing to the

high winds that prevail on the mountain top. Mt. Washburn has an elevation of 10,388 feet above sea-level; it is one of the highest mountains in the reservation. On a clear day, the view from the summit is unsurpassed; mountain peaks and ranges for miles around stand out in bold relief.

Side Trip to Tower Falls, Yancey's and Petrified Trees.—It is about ten miles from Mt. Washburn to Tower Falls, and three miles from the falls to Yancey's where the wagon-road is intersected leading from Mammoth Hot Springs to Cook City, (a mining camp just outside the northeast corner of the Park). Tower Creek empties into the Yellowstone a few hundred feet below the falls; these are 110 feet high, deriving



MOUNT WASHBURN.

their name from the peculiar rock formation which rises, towerlike, several hundred feet above their banks.

A Wylie Camp situated near Tower Falls is equipped to accommodate a limited number of visitors over night.

The Canyon wall of the Yellowstone, opposite the mouth of Tower Creek, is capped with a layer of lava quite unlike other portions of the canyon.

The petrified trees are one and a half miles from Yancey's and are reached by an easy trail. They are the only specimens of petrified trees, standing in their natural position, to be found in the Park. On Specimen Ridge, across the Yellowstone some ten miles from Yancey's are numerous specimens of petrifactions many of them being four and five feet in diameter. Yancey's place is 18 miles from Mammoth Hot Springs; the road over Mt. Washburn connects with the present road near this point. The best of trout fishing is found in the Yellowstone River near Yancey's, in the East Fork and Slough Creek.

Side Trip from Mammoth Springs to Middle Gardiner Falls and Bunsen Peak.—Surrounding Mammoth Springs are many interesting places that can be visited by those fond of driving and horseback riding.

The road to the Middle Gardiner Falls leaves the Golden Gate road about half a mile south from the hotel, and passes over the eastern slope of Bunsen Peak to a point, which is 1,200 feet above the Middle Gardiner River. The walls of the canyon are nearly perpendicular, and the total drop of the falls is 300 feet. The road continues around the slope of Bunsen Peak, intersecting the main road at Golden Gate.

To the south the lofty Teton range, though 100 miles distant, can be seen on a clear day; the Gallatin range to the west; while Electric Peak, Hot Spring Valley and the Yellowstone Range are north and east.

Side Trip to East Gardiner Falls and Mt. Everts.— The gigantic wall, facing Mammoth Springs and rising 1,000 feet above Gardiner River, is the west slope of Mt. Everts; it is possible to drive to the edge of this mountain, which commands one of the finest views of this region.

It is not uncommon to see elk, antelope and mountain sheep in this locality. East Gardiner Falls are composed of two cascades, the upper one having a drop of nearly fifty feet, while the lower falls drops about eighty feet; they are but a short distance apart. Native brook trout fishing is good in Lava Creek, a mile or more above the falls; and in Black-Tail-Deer Creek, some two miles beyond, the latter being a tributary to the Yellowstone River.

Fishing Grounds in Yellowstone Park. During the summer of 1889, by order of the U. S. Fish Commissioner, a large number of young trout were placed in Park streams. In connection with the rivers and lakes having native mountain trout, the Park cannot be compared with other places as a resort for the angler. It has over 250 miles of trout streams, and five or six varieties. Native trout (*salmo myhiss*) are found in Yellowstone River, Gardiner River, Black-Tail-Deer Creek, Lava Creek, East Fork of Yellowstone River, Slough Creek, Yellowstone Lake, Snake River, Heart Lake and Madison River below the Falls of Firehole; Eastern Brook

Trout (*Salvelinus fontinalis*), in Upper Gardiner, Willow Creek, Indian Creek and Glen Creek; Loch Leven Trout (*Salmo trutta levenensis*), in Firehole River, Nez Perces Creek and the Madison above Kepler Cascades; Rainbow Trout (*Salmo iridens*), Madison River below the Falls of Firehole.

To many, one of the most interesting features of the Park is its excellent fishing.

Fishing Grounds near Mammoth Springs are: Gardiner River, Glen Creek, Indian Creek, Yellowstone River, Black-Tail-Deer Creek and Lava Creek.

Near Yellowstone: the Madison River.

Near Upper Basin: Firehole River, Iron Spring Creek.

At Yellowstone Lake in the Outlet.

Near Yancey's: Yellowstone River, East Fork and Slough Creek.

Fauna and Flora of Yellowstone Park. It is but proper that the reader of even a guide-book be given some idea of the animal and plant life to be found in this region; however, it should be borne in mind that an exhaustive treatise on this subject is not attempted herein.

Among the wild animals to be found in the Park are: Buffalo, moose, elk, big horn (mountain sheep), deer, antelope, bear, mountain lion (panther), wolf, fox (red, gray and black), coyote, beaver, otter, mink, marten, sable, muskrat, ermine, rabbit, badger, porcupine, hare, squirrel, chipmunk, ground hog, wolverine and skunk.

Among the **birds** (principally migratory) are: Grouse, owl, hawk, eagle, vulture, duck (in great va-



A PARK BEAR.

riety), goose, brant, pelican, swan, crane, crow, raven, magpie, lark, bluejay, blackbird and robin.

Reptiles are rare, though the rattlesnake is found in parts of the Yellowstone Valley, below an altitude of 6,000 feet.

Among the animals enumerated, the larger varieties are only occasionally met with, and then, as a general thing, only in the more inaccessible and densely wooded portion of the Park, the latter being about three-fourths its entire area.

The principal varieties of **trees** found here are: Black spruce, fir (black, red and balsam), white pine, jack pine, red cedar, aspen (poplar), dwarf maple and willow; while among the shrubs may be seen the sage, choke-cherry, gooseberry, bullberry, currant and buffalo-berry. **Grasses** are quite abundant, the predomi-

nating varieties being the buffalo, bunch and gramma, which are wonderfully nutritious. Rye grass and wild timothy are seen in many places.

Wild flowers, of almost every hue, and in well-nigh endless variety, are quite plentiful and exceedingly hardy, often withstanding severe frost without injury. Singularly, also, the more beautiful varieties are found upon the higher elevations, such as Mt. Washburn, Electric Peak and the like, which at certain seasons are gaily bedecked with flowers of rare color and fragrance; however, many rare specimens of flora are to be found in the lower altitudes.

YELLOWSTONE NATIONAL PARK RULES AND REGULATIONS.

THE following rules and regulations for the government of the Yellowstone National Park are hereby established and made public, pursuant to authority conferred by section 2475, Revised Statutes, United States, and the act of Congress approved May 7, 1894:

1. **It is forbidden** to remove or injure the sediments or incrustations around the geysers, hot springs, or steam vents; or to deface the same by written inscription or otherwise; or to throw any substance into the springs or geyser vents; or to injure or disturb, in any manner, or to carry off any of the mineral deposits, specimens, natural curiosities, or wonders within the Park.

2. **It is forbidden** to ride or drive upon any of the geyser or hot-spring formations, or to turn stock loose to graze in their vicinity.

3. **It is forbidden** to cut or injure any growing timber. Camping parties will be allowed to use dead or fallen timber for fuel. When felling timber for fuel or for building purposes when duly authorized, stumps must not be left higher than 12 inches from the ground.

4. **Fires** shall be lighted only when necessary, and completely extinguished when not longer required. The utmost care must be exercised at all times to avoid setting fire to the timber and grass.

5. **Hunting or killing,** wounding or capturing any bird or wild animal, except dangerous animals when necessary to prevent them from destroying life or inflicting an injury, is prohibited. The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing such birds or wild animals, or in possession of game killed in the Park under other circumstances than prescribed above, will be forfeited to the United States, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation, and the actual owner thereof was not a party to such violation. Firearms will only be permitted in the Park on written permission from the superintendent thereof. On arrival at the first station of the Park guard, parties having firearms, traps, nets, seines, or explosives will turn them over to the sergeant in charge of the station, taking his receipt for them. They will be returned to the owners on leaving the Park.

6. **Fishing** with nets, seines, traps, or by the use of drugs or explosives, or in any other way than with hook

and line, is prohibited. Fishing for purposes of merchandise or profit is forbidden. Fishing may be prohibited by order of the Superintendent of the Park in any of the waters of the Park or limited therein to any specified season of the year, until otherwise ordered by the Secretary of the Interior.

7. **No person** will be permitted to reside permanently or to engage in any business in the Park without permission, in writing, from the Department of the Interior. The superintendent may grant authority to competent persons to act as guides and revoke the same in his discretion, and no pack trains shall be allowed in the Park unless in charge of a duly registered guide.

8. **The herding or grazing** of loose stock or cattle of any kind within the Park, as well as the driving of such stock or cattle over the roads of the Park, is strictly forbidden, except in such cases where authority therefor is granted by the Secretary of the Interior. It is forbidden to cut hay within the boundaries of the Park, excepting for the use of the wild game, and such other purposes as may be authorized by the Secretary of the Interior or the Park superintendent.

9. **No drinking saloon** or bar-room will be permitted within the limits of the Park.

10. **Private notices** or advertisements shall not be posted or displayed within the park, except such as may be necessary for the convenience and guidance of the public, upon buildings on leased ground.

11. **Persons** who render themselves obnoxious by disorderly conduct or bad behavior, or who violate any of the foregoing rules, will be summarily removed

from the Park, and will not be allowed to return without permission, in writing, from the Secretary of the Interior or the superintendent of the Park.

12. **It is forbidden** to carve or write names or other things on any of the mileposts or signboards, or any of the platforms, seats, railings, steps, or any structures or any tree in the park.

Any person who violates any of the foregoing regulations will be deemed guilty of a misdemeanor, and will be subjected to a fine as provided by the act of Congress approved May 7, 1894, "to protect the birds and animals in Yellowstone National Park and to punish crimes in said Park, and for other purposes," of not more than one thousand dollars, or imprisonment not exceeding two years, or both, and be adjudged to pay all costs of the proceedings.

INSTRUCTIONS.

(1). The feeding, interference with, or molestation of any bear or other wild animal in the Park in any way by any person not authorized by the superintendent is prohibited.

(2). **Fires.**—The greatest care must be exercised to insure the complete extinction of all camp fires before they are abandoned. All ashes and unburned bits of wood must, when practicable, be thoroughly soaked with water. Where fires are built in the neighborhood of decayed logs, particular attention must be directed to the extinguishment of fires in the decaying mold. Fire may be extinguished where water is not available by a complete covering of earth, well packed down.

Care should be taken that no lighted match, cigar, or cigarette is dropped in any grass, twigs, leaves, or tree mold.

(3). **Camps.**—No camp will be made at a less distance than 100 feet from any traveled road. Blankets, clothing, hammocks, or any other article liable to frighten teams must not be hung at a nearer distance than this to the road. The same rule applies to temporary stops, such as for feeding horses or for taking luncheon.

Many successive parties camp on the same sites during the season, and camp grounds must be thoroughly cleaned before they are abandoned. Tin cans must be flattened and, with bottles, cast-off clothing, and all other débris, must be deposited in a pit provided for the purpose. When camps are made in unusual places where pits may not be provided, all refuse must be hidden where it will not be offensive to the eye.

(4). **Bicycles.**—The greatest care must be exercised by persons using bicycles. On meeting a team the rider must stop and stand at side of road between the bicycle and the team—the outer side of the road if on a grade or curve. In passing a team from the rear, the rider should learn from the driver if his horses are liable to frighten, in which case the driver should halt and the rider dismount and walk past, keeping between the bicycle and the team.

(5). **Fishing.**—All fish less than 6 inches in length should at once be returned to the water with the least damage possible to the fish. No one person shall catch more than twenty fish in one day.

(6). **Dogs.**—Dogs and cats are not permitted in the Park.

(7). **Grazing animals.**—Only animals actually in use for the purposes of transportation through the Park may be grazed in the vicinity of the camps. They will not be allowed to run over any of the formations, nor near to any of the geysers or hot springs; neither will they be allowed to run loose within 100 feet of the roads.

(8). **Hotels.**—All tourists traveling with the authorized transportation companies, whether holding hotel coupons or paying cash, are allowed the privilege of extending their visit in the Park at any of the hotels without extra charge for transportation. However, twenty-four hours' notice must be given to the managers of the transportation companies for reservations in other coaches.

(9). **Boat Trip to Yellowstone Lake.**—The excursion boat on Yellowstone Lake plying between the Lake Hotel and the Thumb Lunch Station at the West Bay is not a part of the regular transportation of the Park, and an extra charge is made by the boat company for this service.

(10). **Driving on Roads of Park.**—(a) Drivers of vehicles of any description, when overtaken by other vehicles traveling at a faster rate of speed, shall, if requested to do so, turn out and give the latter free and unobstructed passageway.

(b) Vehicles, in passing each other, must give full half of the roadway. This applies to freight outfits as well as any other.

(c) Racing on the Park roads is strictly prohibited.

(d) Freight, baggage, and heavy camping outfits on sidehill grades throughout the Park will take the outer side of the road while being passed by passenger vehicles in either direction.

(e) In making a temporary halt on the road for any purpose excepting for lunch or camp, all teams and vehicles will be pulled to one side of the road far enough to leave a free and unobstructed passageway.

(f) In rounding sharp curves on the roads, like that in the Golden Gate Canyon, where the view ahead is completely cut off, drivers will slow down to a walk. Traveling at night is prohibited except in cases of emergency.

(g) Transportation companies, freight and wood contractors, and all other parties and persons using the Park roads will be held liable for violation of these instructions.

(h) Pack trains will be required to follow trails whenever practicable. During the tourist season, when traveling on the road and vehicles carrying passengers are met, the pack train must move off the road not less than 100 feet and await the passage of the vehicle.

(i) During the tourist season pack animals, loose animals, or saddle horses, except those ridden by duly authorized persons on patrol or other public duties, are not permitted on the coach road between Gardiner and Fort Yellowstone.

(k) Riding at a gait faster than a slow trot on the plateaus near the hotels where tourists and other persons are accustomed to walk is prohibited.

(l) Mounted men on meeting a passenger team on a grade will halt on the outer side until the team passes. When approaching a passenger team from the rear warning must be given, and no faster gait will be taken than is necessary to make the passage, and if on a grade the passage will be on the outerside. A passenger team must not be passed on a dangerous grade.

(m) All wagons used in hauling heavy freight over the Park roads must have tires not less than 4 inches in width. This order does not apply to express freight hauled in light spring wagons with single teams.

(11). **Miscellaneous.**—Automobiles are not permitted in the Park.



CAMPING IN THE YELLOWSTONE.

(12). **The penalty for disregard** of these instructions is summary ejection from the Park.

Information relative to side trips in the Park and the cost thereof can be procured from those authorized to transport passengers through or to provide for camping parties in the Park, also at the office of the superintendent.

Persons are not allowed to bathe near any of the regularly traveled roads in the Park without suitable bathing clothes.

All complaints by tourists and others as to service, etc., rendered in the reservation should be made to the superintendent in writing before the complainant leaves the Park.

CAMPING GROUNDS IN YELLOWSTONE PARK.

Mile posts are lettered as follows:

G. C.—For Gardiner City.
M. S.—For Mammoth Hot Springs.
N. B.—For Norris Geyser Basin.
R. S.—For Riverside Station.
F. H.—For Fountain Hotel.
U. B.—For Upper Geyser Basin.
W. T.—For West Thumb, Yellowstone Lake.
L. H.—For Hotel, Yellowstone Lake.
C. J.—Canyon Junction, near Grand Canyon.

Camping parties should inform themselves as to the rules and regulation of the Park and pay particular attention to extinguishing their camp fires.

It is forbidden to camp within 100 feet of any main traveled road.

The following camping places are used by parties making a tour of the Park:

Camp No. 1, is Mammoth Hot Springs Camp, about a mile south of the hotel on the old Golden Gate road, near the one-mile post. An excellent spring near the road; good grass and plenty of timber near at hand. This camp is convenient to the Hot Spring formations.

Camp No. 2, on Gardiner River, seven miles from Mammoth Hot Springs; good water and grass; wood plenty, and timber for protection; also on Willow Creek.

Camp No. 3, ten and one-quarter miles from Mammoth Hot Springs, near the Apollinaris Spring in the south end of Willow Park. An abundance of wood, water and grass.

Camp No. 4, thirteen and three-quarter miles from Mammoth Hot Springs. A sign board reads: "100 yards to good camp, wood, water and grass."

Camp No. 5, at Norris. Pass the junction of the Fountain and Canyon roads, follow the latter across the bridge about one-quarter mile and the best camping ground in this vicinity is found; it is nearer the basin, has excellent water, plenty of wood and grass.

Camp No. 6, Elk Park Camp. In going south from Norris, cross Elk Park, pass the two-mile post about one-quarter of a mile, enter the timber on main road about 100 feet and a road leads to the left into a small park—a well-protected camp, wood and grass plenty, water in the Gibbon about 300 yards.

Camp No. 7, in Gibbon Meadow, mouth of Gibbon Canyon, between the three and four-mile posts south

of Norris. The favorite camp near the river is west of the road near the four-mile post, plenty of wood in the vicinity, and an abundance of grass and water. The camps east of the road are nearer wood, while water is not as convenient.

Parties Entering at Western Entrance will find excellent camping grounds at the junction of the Gibbon and Madison Rivers.

Camp No. 8, Lower Geyser Basin. There is not any good camping ground between Gibbon Meadow and the valley of the Firehole. Near the seventeen-mile post south of Norris, good camps can be made along the river up to the junction of Nez Perces Creek, along Nez Perces for a mile on the north bank, and on the West bank of the Firehole for a couple of miles in the vicinity of the old Firehole Hotel; also on the east bank of the Firehole about half a mile south of the Cavalry Cantonment. No camping is allowed near the Fountain Hotel, Geyser and Paint Pots.

Camp No. 9, near Excelsior Geyser on the banks of the Firehole, about half a mile south of the second bridge above Excelsior; plenty of wood and water, with grass on each side of the river, which can be forded near the island.

Camp No. 10, Biscuit Basin, six and one-half miles from Fountain Hotel on the Firehole River, with plenty of wood and grass. This camp is on the north edge of the Upper Geyser Basin, about two miles from Old Faithful, situated in the south end of the basin.

Camp No. 11, near Riverside Geyser. Camping is not allowed in the Upper Basin between the Riverside

Bridge and Old Faithful. Riverside camp is reached by leaving the main road just before crossing the bridge. Wood and water are near at hand, and the open parks back afford fair grazing for the stock. This is the most central camp in the Upper Basin, being near several of the large geysers.

Camp No. 12, near Old Faithful. Leave the main road about 200 yards south of Old Faithful; on the banks of the Firehole will be a fair camping place for a medium sized party. · Grazing grounds are limited in this section.

Camp No. 13, at the Lone Star Geyser, three and one-half miles south of the Upper Geyser Basin. Leave the main road at the three-mile post and follow the road leading to the geyser. Excellent water with an abundance of wood and grass.

Camp No. 14, West DeLacy Creek, seven and three-quarter miles from the Upper Basin on the Pacific side of the continental divide, on the west branch of DeLacy Creek, which empties into Shoshone Lake. Well supplied with wood, water and grass.

Camp No. 15, on the east branch of DeLacy Creek, one mile east of Camp 16. Either of these camps are first-class and are the only camping grounds between Lone Star and Yellowstone Lake. Teton Point is between Camp 14 and Camp 15.

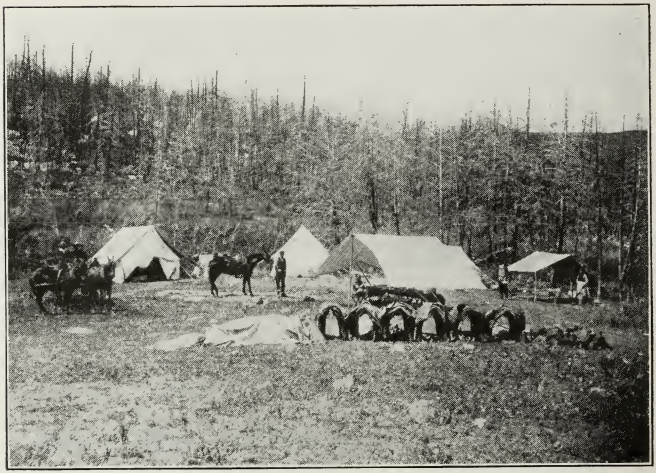
Camp No. 16, Thumb Bay, Yellowstone Lake. The only available camping grounds here are on the creek south of the lunch station. At times the creek is dry and the only good water is the lake. Plenty of grass is found up the creek—wood in abundance.

Camp No. 17, on Yellowstone Lake. The first good camping grounds north of Thumb Bay on the road to the hotel are thirteen and one-half miles, five and one-half from the outlet. Plenty of wood and water and good grazing a short distance back from the lake shore.

Camp No. 18, on Bridge Bay near the Natural Bridge, seventeen miles from West Thumb, two miles from hotel. This camp is fully as good as Camp 17 and nearer the lake outlet by three and one-half miles.

Camp No. 19, at the outlet of Yellowstone Lake. Excellent camping grounds are found a mile or two north of the hotel. A creek of cold spring water, wood and grass in abundance.

Camp No. 20, at Mud Geysers, seven and one-half



PROF. ARNOLD HAGUE'S CAMP—U. S. GEOLOGICAL SURVEY.

miles from the lake and eight and one-half from the Canyon. Good camping grounds.

Camp No. 21, Grand Canyon Camp. The best camping place at the Canyon is one mile south of Canyon Junction. Many parties camp near the Junction, but the camping grounds one mile south are far better. Wood and grass near at hand, the river for water. No camping is allowed nearer the Canyon than at the Junction. Good camping grounds are found on Cascade Creek near the crossing a mile or two north of the hotel, but not convenient for sightseers.

HISTORICAL.

ALTHOUGH part of it was included in the great Louisiana Purchase of 1803, the Yellowstone Park was not then known to white men. Probably the first one who ever saw any of its hot springs or geysers was John Colter who left the celebrated Lewis and Clark Expedition, which was on its return to St. Louis, in 1806 and started for the head waters of the Missouri River to trap and hunt. This lone adventurer passed northward in 1807 from the mouth of the Big Horn to the Forks of the Shoshone River where he discovered an immense tar spring; he continued on through a country where much hot spring and geyser phenomena exist and down the Yellowstone River to the ford at Tower Falls, thence out near the northeastern corner of what is now the National Park.

After four years of peril among the Indians and a miraculous escape from the hostile Blackfeet, he returned in 1810 to St. Louis. His wonderful tales were

hard to believe and the place he described, (which was thought to be the product of his imagination), was termed "Colter's Hell".

The Park had been described in part by some of the early hunters, but their knowledge of the place was limited, due to the fact, no doubt, that the region was so difficult to explore; and it is a fact worthy of note that until 1834, no written description of these geyser regions had ever appeared. But in that year, one W. A. Ferris visited the Upper and Lower Geyser Basins and prepared a description of what was there. The next written account of the region appeared ten years later based on information furnished by the noted Rocky Mountain Guide, James Bridger, "He (Bridger) gives a picture most romantic and enticing of the head waters of the Yellowstone," to quote from Gunnisen's History of the Mormons, "A lake, sixty miles long, cold and pellucid, lies embosomed among high precipitous mountains. On the west side is a sloping plain, several miles wide, with clumps of trees and groves of pine. The ground resounds with the tread of horses. Geysers spout up seventy feet high, with terrific hissing noise, at regular intervals. Waterfalls are sparkling, leaping and thundering down the precipices, and collect in the pool below. The river issues from this lake, and for fifteen miles roars through the perpendicular canyon at the outlet. In this section are the 'Great Springs,' so hot that meat is readily cooked in them, and as thy descend on successive terraces, afford at length delightful baths. On the other side is an acid spring, which gushes out in a river torrent; and below

is a cave, that supplies 'vermillion' for savages in abundance." Probably no other man in Bridger's time had such a comprehensive knowledge of the Park region.

Captain John Mullen mentions the Park geysers in his report to the government in 1853 and states that he visited them.

Colonel Raynold's Expedition could not penetrate the region when it attempted to explore it in 1860, on account of the snow encountered; the party encircled it however and learned much from the tales of hunters and trappers who had visited it. Colonel Raynold in his report on the "Exploration of the Yellowstone" in 1859-60 states regarding the "Munchausen Tales" about the Park:

"One was to this effect: 'In many parts of the country petrifactions and fossils are very numerous, and, as a consequence, it was claimed that in some locality (I was not able to fix it definitely) a large tract of sage is perfectly petrified, with all the leaves and branches in perfect condition, the general appearance of the plain being like that of the rest of the country, but all is stone; while the rabbits, sage hens and other animals usually found in such localities are still there, perfectly petrified, and as natural as when they were living; and, more wonderful still, the petrified bushes bear the most wonderful fruit; diamonds, rubies, sapphires, emeralds, etc., etc., as large as black walnuts, are found in abundance.' "

The following is taken from the report made to the late Dr. F. V. Hayden, chief of Geological Survey of Territories, by Henry Gannet, E. M., on the geograph-

ical field work of the U. S. Geological Survey during the season of 1878:

"The story of the remarkable fruit born by these stone trees is not far from correct, the main difference between the story and the fact being that the fruit is borne on the outside and inside of the trunk of the trees, instead of on the ends of the branches. The mineral species are not as given in the story, either, but this is a matter of no vital importance. In the process of the silicification of wood the last result of all is the production of quartz crystals. The trunk is converted totally into crystalline quartz, radiating from within outward, the crystals being all crowded out of shape. The inside and outside of the hollow cylinder of quartz, which represents the former tree, are covered with the characteristic quartz pyramids. Such products of silicification are very abundant in the Park, particularly on Amethyst Ridge, and are, undoubtedly, the stone fruit of the petrified trees and bushes. The crystals are colorless, amethystine or yellow, and according to the color, are known to the mountain man as diamonds, amethyst, topaz, etc. It is unnecessary to say that the part of the story relating to animal life was manufactured from the whole cloth.

"In 1863, Captain W. W. DeLacy, in command of a large party of prospectors, left Montana to prospect on the upper waters of the Snake. Striking that river near the junction of Henry's Fork, they followed up the main river through the canyon, prospected in Jackson's Hole, and, not finding gold in paying quantities, they broke up the party, some returning one way, some

another. Captain DeLacy, with a portion of the party, followed up the Snake and Lewis Fork, discovering Lewis and Shoshone (DeLacy's) Lakes, the Shoshone and the Lower Basins. The geographical work done by Captain DeLacy on this trip was embodied in a map of Montana, drawn by himself, and published by authority of the territory in 1864-65, and the material thus made public was afterwards used by the land office in the compilation of maps of that region.

"The results of this trip seem to have attracted little or no attention, for we hear of no one going into the country until 1869, when the two prospectors, Cook and Folsom, made a prospecting tour through the Park. They followed the Yellowstone up to the mouth of the East Fork, then up the latter stream for a few miles, crossing over to the Yellowstone at the Great Falls; thence they went up this stream to the foot of the lake and around the east side of the latter to the extremity of the west arm; thence crossing over to Shoshone Lake and Lower Geyser Basin on the Madison or Firehole, and finally left the country by following down the Madison River.

"Their story, written by Mr. David E. Folsom, and published in the Chicago Western Monthly for July, 1870, immediately attracted attention, and the following summer a large party, composed of prominent citizens of Montana, under the leadership of General Washburn, then Surveyor General of Montana, was made up for the purpose of exploring this region. Among the party was Hon. N. P. Langford, first superintendent of the Park; Hon. Cornelius Hedges, who first proposed set-

ting apart this region as a National Park; Hon. T. C. Everts and S. T. Hauser, accompanied by a small escort from Fort Ellis in charge of Lieut. G. C. Doane.

"This party made quite extensive explorations on the Yellowstone and Madison rivers. Passing up the Yellowstone by the well-known trail, they traveled completely around the lake, visiting all localities of interest along the route, with the single exception of Mammoth Hot Springs, on Gardiner River."

Many of the most prominent features of the Park were named by this party—Mount Washburn the famous promontory, Old Faithful Geyser, the Castle, Bee Hive, National Park Mountain, and several other conspicuous points of interest.

While they were near Yellowstone Lake, Mr. Everts strayed away from the party and was lost in this almost inpenetrable country. After making a diligent but unsuccessful search for him, the party was forced to continue their journey; and when they returned, finding that Mr. Everts had not been heard from, two men with provisions and ammunition were immediately sent out in search of him.

In the meantime Mr. Everts had been overtaken by a severe storm and while searching on foot for evidence of a trail, lost his eye glasses and was unable to return to his horses. Three weeks later he was found by Jack Barronette in a starved and half demented condition crawling on his hands and knees. Happily he fully recovered from his unfortunate experience.

The success of the Washburn Expedition and the

accounts furnished by its members led to extensive explorations in 1871.

Expeditions under Dr. F. V. Hayden of the United States Geological Survey, and Captains Barlow and Heap of the Engineer Corps of the Army resulted in the discovery of Mammoth Hot Springs and the route from the Lower Basin to the Yellowstone River. A map of the outline of the Yellowstone Lake was made, and collections of specimens were gathered throughout the region. The reports which followed were scientific and very complete.

Until 1872, the region was open to settlers and there were no restrictions on hunting, trapping, gathering specimens and the fencing-in of the geysers for private gain. But these dangers were foreseen and the region was set aside as a National Park, March 1, 1872, when President U. S. Grant affixed his signature to the Act of Dedication.

THE ACT OF DEDICATION OF YELLOWSTONE NATIONAL PARK.

Approved March 1, 1872.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled:

That the tract of land in the Territories of Montana and Wyoming, lying near the headwaters of the Yellowstone River, and described as follows, to wit: Commencing at the junction of Gardiner River with the Yellowstone River, and running east to the meridian passing ten miles to the eastward of the most eastern point of Yellowstone Lake; thence south

along the said meridian to the parallel of latitude passing ten miles south of the most southern point of Yellowstone Lake; thence west along said parallel to the meridian passing fifteen miles west of the most western point of Madison Lake; thence north along said meridian to the latitude of the junction of the Yellowstone and Gardiner Rivers; thence east to place of beginning—is hereby reserved and withdrawn from settlement, occupancy or sale under the laws of the United States, and dedicated and set apart as a public park or pleasure ground for the benefit and enjoyment of the people; and all persons who shall locate, settle upon or occupy the same or any part thereof, except as hereinafter provided, shall be considered trespassers and removed therefrom.

Sec. 2. The said public Park shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be, as soon as practicable, to make and publish such rules and regulations as he may deem necessary and proper for the care and management of the same. Such regulations shall provide for the preservation from injury or spoliation of all timber, mineral deposits, natural curiosities or wonders within said park and their retention in their natural condition.

The Secretary may, in his discretion, grant leases for building purposes, for terms not exceeding ten years, of small parcels of ground, at such places in said park as shall require the erection of buildings for the accommodation of visitors; all the proceeds of said leases, and all other revenues that may be derived from any source connected with said park, to be expended

under his direction, in the management of the same, and the construction of roads and bridle paths therein. He shall provide against the wanton destruction of the fish and game found within said park, and against their capture or destruction for the purpose of merchandise or profit. He shall also cause all persons trespassing upon the same after the passage of this act to be removed therefrom, and generally shall be authorized to take all such measures as shall be necessary or proper to fully carry out the objects and purpose of this act.

In 1873, Captain W. A. Jones, U. S. A., took a large party through the Park. He entered it from the head of the Stinking Water, crossing one of the many passes near Mt. Chittenden. After visiting most of the points of interest in the Park, he went out via the Upper Yellowstone, on the way verifying the old trapper's legend about the 'Two Ocean River,' and discovering a practical pass (Togwotee Pass) and route from the south to the Park. This discovery was by far the most valuable result of the expedition.

In 1875 Captain William Ludlow, U. S. A., in charge of a reconnaissance in Central Montana, made a flying trip to the Park. He developed little that was new save accurate measurements of the Upper and Lower Falls of the Yellowstone.

General O. O. Howard crossed the Park in his famous pursuit of the Nez Percé Indians in 1877; the year that Col. P. W. Norris was made Superintendent to succeed Hon. N. P. Langford who had held that office five years. Mr. Langford did more for the Park

than can be reckoned; he served as Superintendent without pay or remuneration of any kind and had upheld the "National Park Idea" from the time the Expedition of 1870 talked of the plan until the Act of Dedication was finally passed in 1872.

The United States Geological Survey resumed work in the Park in 1878 under Dr. F. V. Hayden; and in 1883 a report was published giving detailed descriptions of the points of interest, as well as scientific discussions of the phenomena observed. This report is beautifully illustrated with color-plates, engravings, diagrams and maps.



PRESIDENT ARTHUR'S PARTY AT UPPER BASIN, AUGUST, 1883.

Standing—Reading from left—Col. Mike Sheridan, U. S. A., Gen. Anson Steger, Capt. Philo Clark, U. S. A., Judge Rawlins, Col. J. F. Gregory, U. S. A.

Sitting—Reading from left—Gov. Schuyler Crosby, Mont., Gen. P. H. Sheridan, U. S. A., President C. A. Arthur, Secy. of War Robt. T. Lincoln, Senator Geo. G. Vest.

In August, 1883, President Arthur with the Secretary of War, Lieutenant-General Sheridan of the Army, Senator Vest and several other distinguished officers and civilians visited the Park in the most elaborate pack-train expedition that has ever been enrolled. The route lay from Green River on the Union Pacific R. R., to Livingston on the Northern Pacific R. R.

Mr. Haynes, Official Photographer of the Park, who accompanied the party procured many interesting photographs on this famous expedition.

In 1886 the administrative policy of the Park was changed. Capt. Moses E. Harris of the military was appointed Superintendent of the Park to succeed Col. D. W. Wear, civilian; and since that time all the superintendents have been officers in the Army.

Winter Exploration in 1887.—In January, 1887, the first successful exploration of the Yellowstone region was made. Lieutenant Fredrick Schwatka of Arctic fame headed the party consisting of F. Jay Haynes, photographer, several eastern gentlemen and a corps of guides, packers and assistants. Their outfit consisted of astronomical instruments, photographic equipment, sleeping bags and provisions which were drawn on toboggans; the party used Norwegian skis and Canadian web snowshoes, but the snow was so light that they sank readily and the toboggans were exceedingly difficult to draw. It took three days to cover the twenty miles from Mammoth Springs to Norris Basin; and the temperature the first night at Indian Creek was 37° below zero.

Unfortunately Lieut. Schwatka fell ill at Norris and was unable to proceed. Mr. Haynes, desirous of ob-

taining a collection of winter scenes of Yellowstone Park, employed two of the sturdiest men of the Schwatka Party, and with Edward Wilson, a government scout, resumed the journey.

The toboggans were abandoned and this party resorted to the customary fashion of packing their equipment and provisions on their backs—each man carrying about forty-five pounds.

Norris Basin was a grand sight. Craters heretofore unnoticed by these men familiar with the Park in summer, steamed copiously. The foliage was heavily laden with ice near the steam vents and geysers, producing all the fantastic forms possible to imagine; while the entire basin resembled a vast manufacturing centre.



PHOTOGRAPHER HAYNES, PARK MID-WINTER.

Tall trees buried in the snow appeared like bushes, sage brush and boulders were entirely hidden, and the general aspect of the country was completely changed; the average depth of the snow being about eight feet.

The steam rising fully two thousand feet from the geysers in the Upper Basin could be seen from the Lower Basin, nine miles away. The Upper Basin presented the most striking appearance; the greater quantity of steam and more numerous active geysers presented an increased variety of peculiar effects.

The beautifully colored walls of the Grand Canyon were masses of pure white. The north half of the Great Falls hung in immense icicles 200 feet in length. An ice bridge fully 100 feet high was formed at the base of the falls coming up fully to the spray line (about one-third the height of the falls). The brink was frozen over and was hidden in an arch of ice fully a dozen feet thick.

Thousands of elk were seen on the exposed ridges of Mt. Washburn, this being their winter range. The trip over Mt. Washburn was one of hardship and unusual privation; a blinding snowstorm overtook the little party of four which lasted three days; during which time they wandered day and night without shelter, provisions or fire. After the storm abated, they found their way to Yancey's exhausted after an adventure which nearly cost them their lives.

The circuit covered was about 200 miles, and the thermometer ranged from 10° to 50° below zero during the twenty-nine days consumed in making the trip.



SNOW-SHOE PARTY IN HAYDEN VALLEY.

The Park is an ideal resort in summer, but it will never become a winter resort on account of the extreme rigors of its climate.

Winter Expedition to the Game Ranges in 1894.— Early in March, 1894, a party was organized at Fort Yellowstone for the purpose of visiting the winter ranges of the game, to ascertain, as near as possible, the exact number of buffalo that still exists, and secure photographs of the same. The party consisted of Captain Scott, Lieut. Forsyth, Scout Burgess, Mr. Burns, Photographer Haynes and three non-commissioned officers. Mounted on the Norwegian snowshoes, with packs of sleeping bags, provisions and camera, they proceeded directly to Hayden Valley *via* Norris

and the Grand Canyon. As most of the Buffalo congregate there during the winter months, they found eighty-one buffalo in the valley, seventy-three comprising the main herd, and numerous small groups of elk aggregating fully 300. After a stay of several days in Hayden Valley the party went to Yellowstone Lake. Captain Anderson, Superintendent of the Park, had instructed Scout Burgess not to overlook the country east of the lake, as a small herd of buffalo usually winter there. The first day out from the lake only elk were seen by the scout and his companion, there being no sign of buffalo. They went into camp about twelve miles up Pelican Creek.

The second day they discovered, in a secluded spot, the "cache" of a poacher, very much to their surprise, as it was supposed that no one was in the Park killing game. The "cache" consisted of a canvas tepee, sleeping bag, provisions and toboggan and six buffalo heads suspended in a tree near by. A trace of fire in the tepee led the scout to believe that the poacher was in the vicinity, and to capture him, was the next move. It had been snowing constantly all the morning, and all snowshoe tracks leading from the camp were entirely obliterated. Some five miles from the camp they heard five or six rifle shots fired in rapid succession. Hastening through the timber to the opening in the direction of the firing, they came directly upon the poacher. He had driven six of the buffalo into the deep snow and slaughtered the entire band. Knowing these men to be of a desperate character, and being armed only with a pistol, it was a brave act for Scout Burgess to arrest him. Fortunately it was snowing

hard, and the approach of the scout was not noticed by the poacher or his faithful dog until the arrest was made. He was taken to the Lake Hotel and escorted from there to the guard house at Fort Yellowstone. Besides the twelve buffalo that were killed by this poacher, a small herd of seven were seen in the Pelican country, making less than 100 now in existence. If these can be protected they will increase rapidly, otherwise the only remaining species of large American game (the bison) will soon be exterminated. Elk were seen in the foothills of Mt. Washburn, on Specimen Ridge, along the east fork of the Yellowstone, on Slough Creek and along the Yellowstone to Mt. Everts, in great numbers. Fully 5,000 wintered in the above localities. Small bands of mountain sheep, deer and antelope were seen on Mt. Everts. The open water of the Yellowstone between the lake and falls was alive with duck and swan. The red fox and coyote were numerous, and an occasional black fox and footprints of mountain lion and bear were seen. The party was in the Park about thirty days and traveled over 300 miles.

Visitors to the Park each summer are numbered in thousands; they come from all over the world to see wonders that a few years ago no one but the mountain man, had ever heard of. The Park is growing in popularity each year, and justly so, for where are geysers the can compare to Old Faithful, the Giant, and a thousand others? Is there a pool elsewhere to compare with the Morning Glory? A falls like the Great Falls or a canyon that has both grandeur and beautiful coloring combined, like the Grand Canyon? No! This is the World's Wonderland!

YELLOWSTONE PARK TRAVEL.

(COMPILED FROM REPORTS OF THE VARIOUS SUPERINTENDENTS)

From 1872 to 1894 no complete records were kept including all visitors. Estimates range from one to five thousand each year.

YEAR	Persons	YEAR	Persons
1895	5,438	1903	13,165
1896	4,659	1904	13,127
1897	10,680	1905	26,188
1898	6,534	1906	17,172
1899	9,579	1907	16,414
1900	8,928	1908	18,748
1901	10,769	1909	32,545
1902	13,433		

SECRETARIES OF THE INTERIOR SINCE THE ACT OF DEDICATION, MARCH 1, 1872.

NAME	From	Date of Commission	Administration
Hon. Columbus Delano	Ohio	Nov. 1, 1870	Pres. Grant.
Hon. Zachariah Chandler	Mich.	Oct. 19, 1875	Pres. Grant.
Hon. Carl Schurz	Mo.	Mar. 12, 1877	Pres. Hayes.
Hon. Samuel J. Kirkwood	Iowa	Mar. 5, 1881	Pres. Garfield and Arthur.
Hon. Henry M. Teller	Colo.	Apr. 6, 1882	Pres. Arthur.
Hon. Lucius Q. C. Lamar	Miss.	Mar. 6, 1885	Pres. Cleveland.
Hon. William F. Vilas	Wis.	Jan. 16, 1888	Pres. Cleveland.
Hon. John W. Noble	Mo.	Mar. 6, 1889	Pres. Harrison.
Hon. Hoke Smith	Ga.	Mar. 6, 1893	Pres. Cleveland.
Hon. David R. Francis	Mo.	Sept. 1, 1896	Pres. Cleveland.
Hon. Cornelius N. Bliss	N. Y.	Mar. 5, 1897	Pres. McKinley.
Hon. Ethan A. Hitchcock	Mo.	Dec. 21, 1898	Pres. McKinley & Roosevelt.
Hon. James R. Garfield	Ohio	Jan. 15, 1907	Pres. Roosevelt.
Hon. Richard A. Ballinger	Wash.	Mar. 5, 1909	Pres. Taft.

SUPERINTENDENTS OF YELLOWSTONE PARK FROM 1872 TO 1910.

APPOINTED FROM CIVIL LIFE.

N. P. Langford	May 10, 1872 to	April 18, 1877
Philetus W. Norris	April 18, 1877 to	Feb. 2, 1882
Patrick H. Conger	Feb. 2, 1882 to	July 28, 1884
Robert E. Carpenter	Aug. 4, 1884 to	May 29, 1885
David W. Wear	May 29, 1885 to	Aug. 1, 1886

ARMY OFFICERS DETAILED FOR DUTY AS ACTING SUPERINTENDENTS

Capt. Moses Harris	5th Cav., U. S. A.	Aug. 17, 1886 to	May 31, 1889
Capt. F. A. Boutelle	1st Cav., U. S. A.	June 1, 1889 to	Feb. 14, 1891
Capt. Geo. S. Anderson	6th Cav., U. S. A.	Feb. 15, 1891 to	June 22, 1897
Col. S. B. M. Young	3rd Cav., U. S. A.	June 23, 1897 to	Nov. 15, 1897
Capt. James B. Erwin	4th Cav., U. S. A.	Nov. 16, 1897 to	Mar. , 1899
Capt. W. E. Wilder	4th Cav., U. S. A.	Mar. , 1899 to	June 22, 1899
Capt. Oscar J. Brown	1st Cav., U. S. A.	June 23, 1899 to	July 23, 1900
Capt. Geo. W. Goode	1st Cav., U. S. A.	July 24, 1900 to	May 7, 1901
Capt. John Pitcher	1st Cav., U. S. A.	May 8, 1901 to	May 13, 1907
Gen. S. B. M. Young	U. S. A., Retired	May 14, 1907 to	Nov. 27, 1908
Maj. H. C. Benson	14th Cav., U. S. A.	Nov. 28, 1908	

OTHER PERSONS PROMINENT IN PARK AFFAIRS.

Anderson, Ole A., commercialized the practice of coating various articles in the hot water at Mammoth Springs, and conducted this unique business many years.

Arthur, Pres. Chester A., was the first president to visit the Park. He made the memorable trip in 1883 with General Sheridan and party from the Union Pacific R. R. through the Park to the Northern Pacific R. R.

Barlow, Capt. J. W., of the Engineers Corps U. S. Army led one division of the Expedition of 1871 when the Mammoth Hot Springs was discovered.

Baronett, C. J., scout and guide, built the first bridge across the Yellowstone in 1871 east of Yancey's. Mr. Everts lost from the Washburn-Langford Expedition in 1870 was found by him; Baronett Park commemorates his name.

Bassett Bros., operated the first tourist line in the early 80's through the Park at the Western Entrance, from Beaver Canyon, Idaho, on the Utah Northern R. R.

Bridger, James, who lived from 1804-81, was the leading spirit in the Rocky Mountain Fur Company, the discoverer of Great Salt Lake, and the best informed man of his time on the Yellowstone Park.

Bryant, R. C., proprietor of the Bryant Camps and manager of the American Tourist Association, operates through the Western Entrance.

Bunsen, Robt. W., after whom Bunsen Park was named, invented the Bunsen Burner, Alkalimiter and many other scientific instruments; and advanced the most authoritative explanation of geyser action.

Burgess, Scout J. C., in the winter of 1894 captured a notorious poacher in the Park. This capture led to the passage of the present strict laws protecting the wild animals in Yellowstone Park.

Child, Harry W., now president of the Yellowstone Park Transportation Company and the Yellowstone Park Hotel Company has been in the Park many years. The present high standard of hotel service and transportation is due in a large measure to him.

Chittenden, Col. H. M., of the Corps of Engineers U. S. Army had charge of all the roads and bridges in the Park, for a number of years prior to 1904. He constructed the Stone Arch at the Northern Entrance, the concrete viaduct in Golden Gate and the road through the Hoodoos; he built the steel and concrete arch bridge near the Canyon, and the road to the summit of Mt. Washburn—engineering achievements of the highest order.

Clagett, Hon. Wm. H., delegate from Montana, introduced the Park Bill in the House, Dec. 18, 1871, and Senator Pomeroy of Kansas in the Senate.

Colter, John, a private in the famous Lewis and Clark Expedition was the first white man to visit Yellowstone Park. In 1807 he entered the Park at the southwest and left the region near the northeast corner.

Comstock, Prof. T. B., geologist of Captain Jones Expedition in 1873; the Comstock theory of geyser action appeared in his report of that year.

De Lacy, Capt. W. W., headed a prospecting expedition from Virginia City, Aug. 3, 1863, and discovered the pass between Shoshone Lake and the Upper Basin.
De Lacy Creek was named in his honor.

De Smet, Father, Jesuit missionary, in 1852 gave the first correct location of Yellowstone Park: Between the 43d and 45th degrees of latitude and the 109th and 111th degrees of longitude.

Doane, Lieut. G. C., was in command of the escort of the Washburn-Langford Expedition of 1870. His descriptions of the Canyon and other portions of the Park are most vivid and interesting. In 1875 he escorted Secretary of War Belknap and other distinguished gentlemen through the Park.

Dunraven, Lord, visited the Park in 1874. Dunraven Park near Mt. Washburn was named after this enthusiastic writer.

Everts, Truman C., member of the Washburn-Langford Expedition, was lost from the party in crossing the continental divide between Yellowstone and Heart Lakes. He wandered 37 days until found by Scout Baronett a few miles from Mammoth Hot Springs. Mt. Everts commemorates his name.

Ferris, W. A., of the American Fur Company, visited the Upper and Lower Basins with two Indians in 1834 and wrote the first authentic descriptions of the geyser basins.

Folsom, W. A., with two companions, C. W. Cook and Wm. Peterson, made a thirty-six day expedition into the Park from Montana in 1869. His account of the trip appeared in the *Western Monthly,* Chicago, in July, 1871.

Gibbon, Gen. John A., commanded an expedition into the Park in 1872. Gibbon Canyon and Falls were named in his honor.

Gibson, Hon. Sir Charles, was first president of the Yellowstone Park Association. Virginia Cascades was named for his daughter.

Grant, Pres. U. S., signed the Act of Dedication, Mar. 1, 1872, creating the Yellowstone National Park.

Hague, Prof. Arnold, of the U. S. Geological Survey compiled a scientific report on Yellowstone Park published in 1899.

Hatch, Rufus, of New York, secured the first franchise for hotel improvements in the Park-1883. He constructed the Mammoth Hotel which was opened in 1884 and later sold to the Yellowstone Park Association.

Hayden, Dr. F. V., has been identified wth the Park as geologist since 1859. The Hayden U. S. Geological Survey Expedition of 1871 resulted in great benefit to the Park. The valley between Yellowstone Lake and the Canyon bears his name.

Haynes, F. Jay, president of the Monida & Yellowstone Stage Company since its organization in 1898 is also Official Photographer of Yellowstone Park. He came to the Park in 1881 as photographer, accompanied President Arthur and General Sheridan on their trip in 1883, and made two winter trips of the Park, 1887 and 1894.

Hedges, Cornelius, member of the Washburn-Langford Expedition. While in camp at the junction of the Gibbon and Firehole rivers, Sept 19, 1870, first suggested to the party that the region be set aside as a National Park.

Henderson, G. L., brother of Speaker Henderson of Iowa, came to the Park in 1882 as Assistant Superintendent, built the Cottage Hotel at Mammoth Springs in 1883.

Hofer, T. E., President of the T. E. Hofer Boat Company at Yellowstone Lake since 1907. "Billy" Hofer has been connected with the Park as guide since the early 80's.

Howard, Gen. O. O., in command of government troops pursued Chief Joseph and the Nez Percé Indians on their hostile raid through Yellowstone Park in 1877.

Hoyt, Hon. John W., Governor of Wyoming, visited the Park in 1881 with the view of opening a road from the southeast. Kepler Cascade near the Upper Basin was named for his son.

Huntley, S. S., succeeded Mr. Geo. W. Wakefield in the stage business in 1892 and was president of the Yellowstone National Park Transportation Company from then until his death in 1901.

Jones, Capt. W. A., commanded an expedition through the Park in 1873, which made its exit through the Absaroka Range east of Yellowstone Lake, at a point now called Jones Pass. In the early 90's he had charge of the road construction as U. S. Engineer.

Joseph, Chief, headed the Nez Perces Indians in their raid through the Park in 1877 entering at the Western, or Madison River Entrance, and making exit at the northeast corner of the Park.

Klamer, H. E., has been identified with the Park since the early 80's. He is now proprietor of a general merchandise and curio store at the Upper Geyser Basin.

Langford, N. P., member of the Washburn-Langford Expedition of 1870; he was the first Superintendent of the Park serving from May 10, 1872 to April 18, 1877. It was largely through his efforts that the region was made a National Park.

Ludlow, Capt. Wm. M., made a report on the Park in 1875 and procured accurate measurements of the Upper and Lower Falls of the Yellowstone.

Lyall and Henderson have been identified with the Park since the early 80's. They now conduct the Postoffice and general store at Mammoth Hot Springs.

Meldrum, Judge, John W., has been U. S. Commissioner in the Park since 1894 with headquarters at Mammoth Hot Springs.

Miles, A. W., president of the Wylie Permanent Camping Company, has been identified with the Park for many years.

Moran, Thos., artist with Dr. Hayden's Expedition in 1871. Artist Point at the Canyon, named in his honor, was the point from which he sketched his famous painting of the Grand Canyon now hanging in the Capitol at Washington.

McCartney, J. C., took advantage of the squatter's right and located a claim embracing the Mammoth Hot Springs in 1871, prior to the Act of Dedication, and built thereon the first building in Yellowstone Park. The government later reimbursed him to the extent of $5,000 for his rights and improvements.

Norris, Col. P. W., second Superintendent of the Park, served from April 18, 1877, to Feb. 2, 1882; he explored, described and opened up to tourists Norris Geyser Basin and constructed the first wagon roads throughout the Park to the various objects of interest.

Pryor, Geo. R., succeeded Mr. O. A. Anderson as proprietor of the Park Curio Shop at Mammoth Springs in the fall of 1907.

Raynolds, Capt. W. C., of the Corps of Topographical Engineers, U. S. Army headed a government expedition into the region in 1859 for the purpose of determining the sources of the headwaters of the Missouri River.

Reamer, Robt C., the architect who designed and constructed the unique Old Faithful Inn at the Upper Basin in 1903; also the Colonial Hotel at the Lake, and the Depot at Gardiner.

Roosevelt, Pres. Theodore, assisted in laying the cornerstone of the Arch at Gardiner in April, 1903.

Ryker, J. N., the first observer in the Park in charge of the Weather Bureau Station established at Mammoth Springs in 1903.

Schwatka, Lieut. Fredrick, of Arctic fame, organized the first winter expedition into the region in January, 1887, but was unable to proceed further than Norris. Mr. F. Jay Haynes and Scout Wilson with two assistants made the entire trip around the Park.

Shaw & Powell, conduct camping parties through the Park from the Northern Entrance. Mr. Shaw was captain of the steamer Zillah on Yellowstone Lake, for many years. Mr. Powell has been identified with the tourist business in the Park for a long time.

Sheridan, Gen. Phil., arranged for the escort of the Washburn-Langford Expedition; headed an expedition through the Park in 1882 with Mr. John McCollough as his guest; in 1883 he accompanied President Arthur on his trip. A mountain near Yellowstone Lake bears his name.

Stevenson, James, geologist, was Dr. Hayden's right hand man. His name is perpetuated by an island in Yellowstone Lake and a mountain in the adjoining range.

Stuart, James, from Montana headed a large prospecting party into the Park region in 1864.

Vest, Senator Geo. G., drew up a bill, which was passed by Congress in 1884, to protect the Park, authorizing the Hon. Secretary of the Interior to grant restricted privileges in the Park for business purposes. He was a member of President Arthur's party in 1883.

Wakefield, Geo. W., Wakefield & Hoffman of Bozeman, Mont., established in the early 80's the first stage line in the Yellowstone Park. They were succeeded by the Yellowstone National Park Transportation Company in 1892.

Wald, Andy, sand artist, originated in 1888 the idea of filling bottles, showing pictures of animals, geysers and scenes with the different colored sands of the Park.

Washburn, Gen. H. D., Surveyor-General of Montana, headed the Washburn-Langford Expedition of 1870. Mt. Washburn, the observatory of the Park, was named in his honor.

Waters, E. C., was general manager of the Yellowstone Park Association from 1887 to 1890; and from 1890 to 1907 operated a line of steamboats on Yellowstone Lake.

Wylie, W. W., of Bozeman, Montana, in 1890, established the Wylie Permanent Camps throughout the Park.

Yancey, John, in 1871 established in Pleasant Valley near Baronett's bridge on the trail from Gardiner to Cook City (a mining camp just east of the Park), a stopping place for travelers; and lived there until his death in 1905.

THE YELLOWSTONE PARK HOTEL COMPANY.

The seven splendid hotels situated at various points in the Park are owned and operated by the Yellowstone Park Hotel Company. They are first-class in every respect. Perhaps the most talked of hotel is the Old Faithful Inn, built entirely of logs, and at a cost of more than $200,000. The Colonial Hotel at Yellowstone Lake has the greatest capacity and is elegantly appointed. Guides, private conveyances, fishing tackle and riding horses are to be had at all the hotels, and telegraphic communication is maintained at all times with the outside world.

THE WYLIE CAMPING COMPANY.

The Wylie Company has established eight permanent camps at various points in the Park, and provides transportation for the Park tour from both Gardiner and Yellowstone. They are as follows: Swan Lake Camp, Gibbon Camp, Riverside Camp, Upper Basin Camp, Thumb Camp, Lake Camp, Canyon Camp and Camp Roosevelt. Camp Roosevelt, near Tower Falls, is not included in the regular Wylie tours from either

entrance. All these camps are equipped for night accommodations except the Gibbon and Thumb Camps.

For particulars address,

WYLIE PERMANENT CAMPING CO.,

Gardiner, Mont. June until October.

Livingston, Mont. October until June.

THE YELLOWSTONE PARK TRANSPORTATION COMPANY.

(Operating from the Northern Entrance.)

The Yellowstone Park Transportation Company operates a line of four-horse Concord coaches over the route from the Northern Entrance in connection with the hotels from the Station at Gardiner. Six-horse Concord coaches ply between there and Mammoth Springs. Parties desiring private conveyances for the Park Tour may arrange for them at Mammoth Hotel. Tourists holding tickets N. P. Ry. to O. S. L. R. R. are transferred to the M-Y coaches at Norris Basin after making the tour of the Park.

For particulars address:

THE YELLOWSTONE PARK TRANSPORTATION CO.,

Yellowstone Park, June until October.

Helena, Mont. October until June.

THE MONDIA & YELLOWSTONE STAGE COMPANY.

(Operating from the Western Entrance.)

The Monida & Yellowstone Stage Company operates a line of four-horse Concord coaches from Yellowstone, the Western Entrance, through the Park in connection with the hotels. Passengers holding tickets O. S. L. R. R. to N. P. Ry. are transferred to the coaches of the Y. P. T. Co. at Mammoth after the tour of the Park has been made. Parties desiring private convey-

ances may arrange for them with the M-Y Stage Company at Yellowstone.

For particulars and description of the tour address:

THE MONIDA & YELLOWSTONE STAGE CO.,

Yellowstone Park, June until October.

St. Paul, Minnesota. October until June.

WHERE TOURIST SUPPLIES MAY BE PURCHASED.

MAMMOTH HOT SPRINGS:

Mammoth Hotel News Stand.

Haynes Photograph Stand—In hotel, full line of photographic views, post cards, souvenir spoons, guide books, etc.

Post Office Store—General merchandise, tourist supplies and curios.

Park Curio Shop—Coated articles, sand, curios, Haynes views and post cards, ice cream and soda.

NORRIS GEYSER BASIN:

Norris Hotel News Stand—Haynes views and post cards.

LOWER GEYSER BASIN:

Fountain Hotel News Stand—Haynes views and post cards.

UPPER GEYSER BASIN:

Old Faithful Inn News Stand—Haynes views and post cards.

Klamer Curio Store—General merchandise, tourist supplies and curios.

Haynes Picture Shop—Full line of Haynes photographic views, souvenir spoons, post cards, guide books, etc. Groups of private parties photographed.

YELLOWSTONE LAKE:

Colonial Hotel News Stand—Haynes views and post cards.

Hofer Boat Company Store—Tourist supplies, Haynes views and post cards.

GRAND CANYON:

Canyon Hotel News Stand.

Haynes Photograph Stand—In hotel, full line of Haynes photographic views, souvenir spoons, post cards, guide books, etc. Groups of private parties photographed.

WYLIE CAMPS:

News Stands Throughout the Park—Haynes views and post cards.

TABLE OF DISTANCES.

From Northern Entrance:	Miles
Gardiner City (G. C.) to Mammoth Springs (M. S.)	5
Mammoth Springs to Norris Basin (N. B.)	20
Norris Basin to Fountain Hotel (F. H.)	20
From Western Entrance:	
Yellowstone, Mont., to Fountain Hotel (F. H.)	20
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West Thumb to Lake Hotel (L. H.)	15
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Canyon Junction to Tower Falls (T. F.)	19
Tower Falls to Mammoth Springs (M. S.)	24

ELEVATIONS AT YELLOWSTONE HOTELS.

	Feet
Mammoth Hot Springs Hotel	6,387
Norris Basin Hotel	7,527
Fountain Hotel	7,252
Old Faithful Inn	7,394
Thumb Station and Lake Hotel	7,788
Grand Canyon Hotel	7,710

ALTITUDE OF PRINCIPAL MOUNTAINS.

	Feet		Feet
Avalanche Pk.	10,550	Mt. Langford.	10,902
Bunsen Peak.	8,775	Quadrant Mt.	10,127
Cathedral Pk.	10,650	Mt. Sheridan.	10,385
Electric Peak.	11,155	Mt. Stevenson.	10,350
Mt. Chittenden.	10,150	Table Mt.	10,850
Mt. Everts.	7,600	Top Notch Pk.	10,050
Mt. Holmes.	10,350	Mt. Washburn.	10,388

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*Issue exhausted; accessible at Public Libraries.

THE YELLOWSTONE PARK AND HOW IT WAS NAMED.

The Devil was sitting in Hades one day,
In a very disconsolate sort of a way.
One could tell from his vigorous switching of tail,
His scratching his horn with the point of his nail,
That something had gone with His Majesty wrong,
The steam was so thick and the sulphur so strong.
He rose from his throne with a gleam in his eye,
And beckoning an agate-eyed imp standing by,
Commanded forthwith to be sent to him there
Old Charon, employed in collecting the fare
Of the wicked, who crossed the waters of Styx,
And found themselves soon in a deuce of a fix.

Old Charon, thus summoned, came soon to his chief.
As the Devil was angry, the confab was brief.
Says the Devil to Charon, "Now, what shall I do?
The world it grows worse and grows wickeder, too;
What with Portland, Chicago, Francisco, New York,
I get in my mortals too fast for my fork;
I haven't the room in these caverns below,
St. Peter, above, is rejecting them so.
So hie you, my Charon, to earth, far away.
Fly over the globe without any delay,
And find me a spot quite secluded and drear,
Where I can drill holes from the center in here.
I must blast out more space; so survey the spot well,
For the project on hand is the enlargement of Hell.

"But recollect one thing, Old Charon, when you
Can locate the district where I can bore through,
There must be conveniences scattered around
To carry on business when I'm above ground.
An 'ink-pot' must always be ready at hand
To write out the names of the parties I strand.
There must be a 'punch bowl,' a 'frying-pan,' too,
A 'cauldron' in which to concoct a 'ragout.'
An 'old faithful' sentinel showing my power
Must shoot a salute on the earth every hour,
And should any mortal by accident view
The spot you have chosen, why, this you must do:
Develop a series of pools, green and blue,
That while these poor earth bugs may beauties admire
They'll forget that below I'm poking the fire.
Now fly away, Charon, be quick as you can,
For my place here's so full that I can't roast a man.

To earth flew fleet Charon, to regions of ice;
He found these too cold—so away in a trice,
He sought a location in Africa's sands,
He prospected, and finding too much on his hands
He cut out Australia, Siberia, too,
The north part of China—no! they would not do;
Till just as about to relinquish the chase
He stumbled upon a most singular place.
'Twas deep in the midst of a mountainous range,
Surrounded by valleys secluded and strange,
In a country the greatest, the grandest, the best
To be found upon earth—America's West.
Here the crust seemed quite thin and the purified air,
With the chemicals hidden around everywhere,
Would soon make the lakes that the Devil desired;
So he flew to Chicago and there to him wired:
"I've found you a place never looked at before;
You may heat up the rocks, turn on water, and bore."

Then the Devil with mortals kept plying the fire,
Extracting the water around from the mire,
And boring great holes with a terrible dust,
Till soon quite a number appeared near the crust.
Then he turned on the steam—and lo! upward did fly,
Through rents in the surface, the rocks to the sky.
Then with a rumble there came from each spot,
Huge volumes of water remarkably hot,
That had been there in caverns since Lucifer fell—
Thus immensely enlarging the confines of Hell,
And it happens that now when Old Charon brings in
A remarkable load of original sin,
That His Majesty quietly rakes up the coals,
And up spouts the water, in jets, through the holes,
One may tell by the number of spurts when they come,
How many poor mortals the Devil takes home.

But Yankees can sometimes, without doing evil,
O'ermatch in sagacity even the Devil.
For not long ago Uncle Sam came that way
And said to himself, "Here's the Devil to pay.
Successful I've been in all previous wars;
Now Satan shall bow to the Stripes and the Stars.
This property's mine, and I hold it in fee;
And all of this earth shall its majesty see.
The deer and the elk unmolested shall roam,
The bear and the buffalo each have a home;
The eagle shall spring from her eyrie and soar
O'er crags in the canyons where cataracts roar;
The wild fowls shall circle the pools in their flight,
The geysers shall flash in the moonbeams at night,
Now I christen the country—let all nations hark!
I name it the Yellowstone National Park."

WM. TOD HELMUTH.

Grand Canyon, August, 1894.

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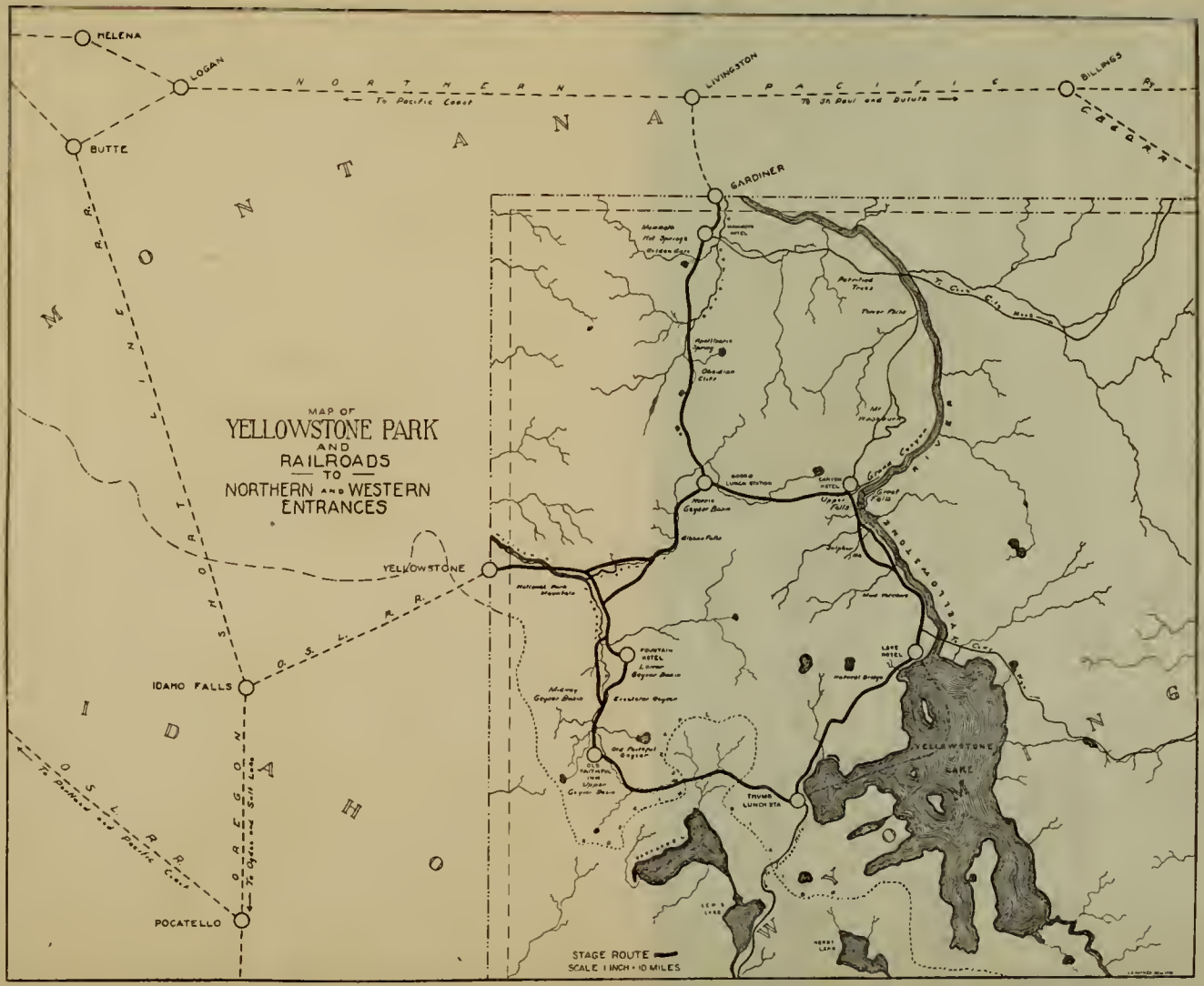
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Thumb Lunch Sta.
Lake Hotel
Natural Bridge
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Lewis Lake
Heart Lake
STAGE ROUTE
SCALE 1 INCH = 10 MILES

